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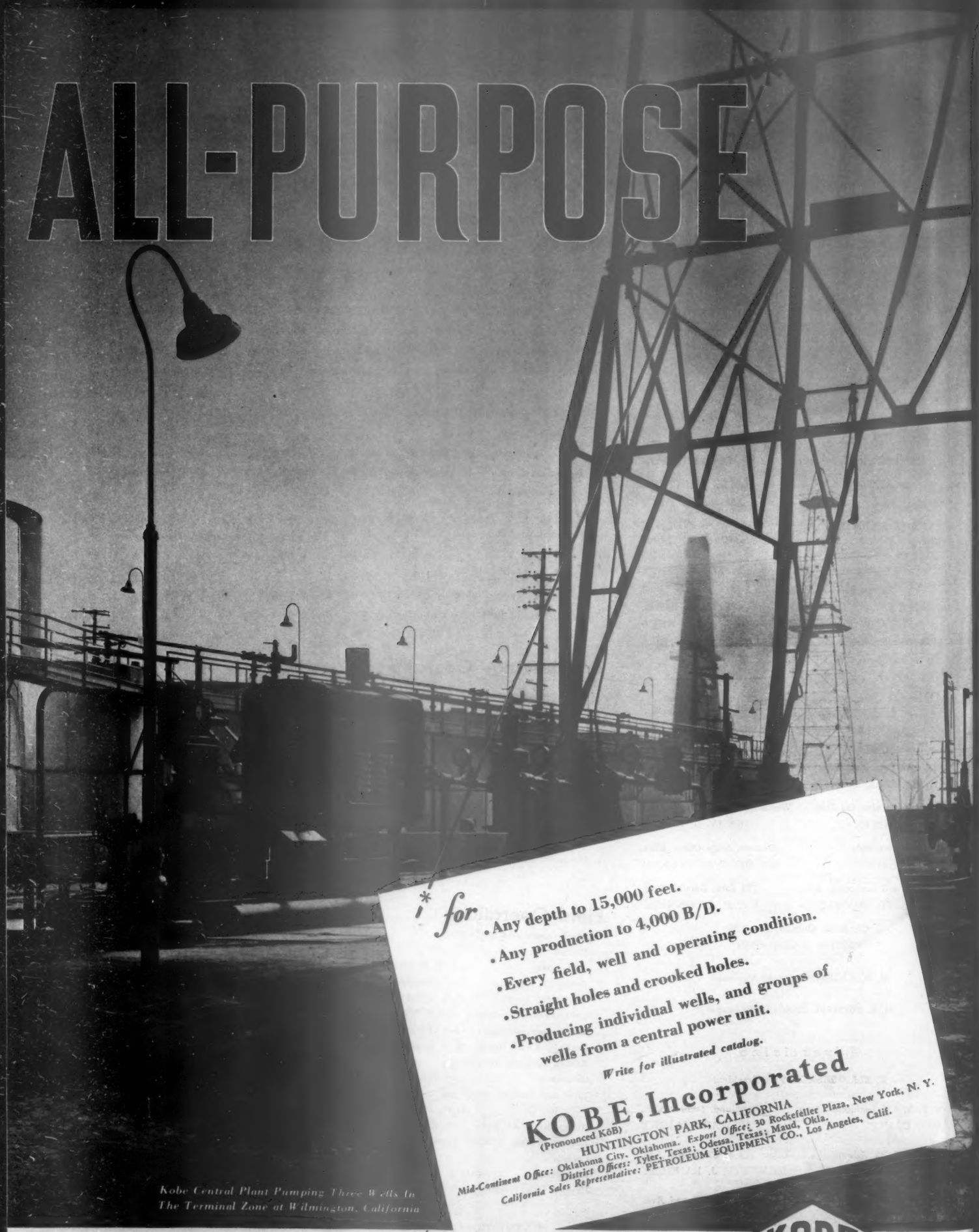
ALL-PURPOSE



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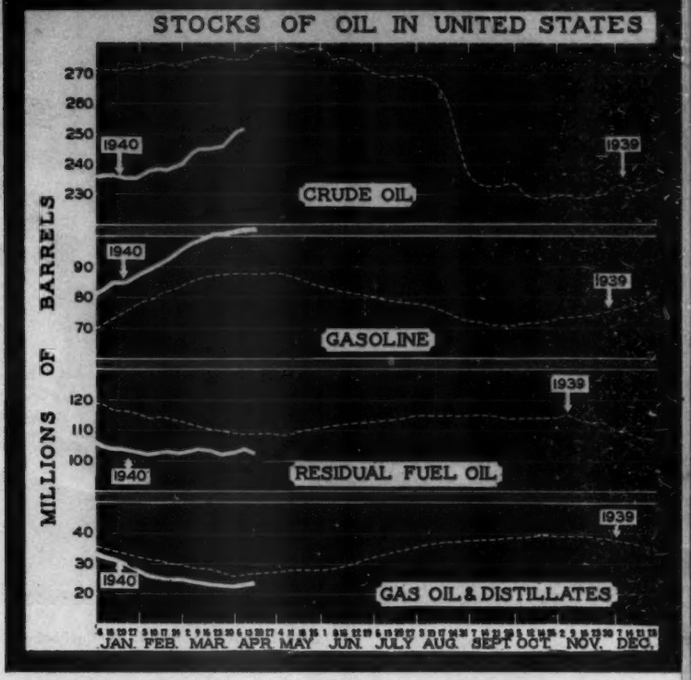
Trends

Decisions in Regard To Crude Allowables In May Are Important



WITH crude-oil production last week within a few thousand barrels daily of the all-time peak and a continued high rate of production apparently scheduled for the remainder of the month, market students are now primarily interested in the adjustments of allowables which have been promised for May and the succeeding months. Few now deny that crude-oil production in recent weeks has been excessive and is directly responsible for whatever weakness is apparent in crude-oil and refinery markets.

CRUDE PRODUCTION *3,871,639 bbl. daily average—up 116,901 bbl. One year ago 3,492,057 bbl.*

CRUDE STOCKS *251,897,000 bbl. as of April 6—up 1,336,000 bbl. One year ago 275,774,000 bbl.*

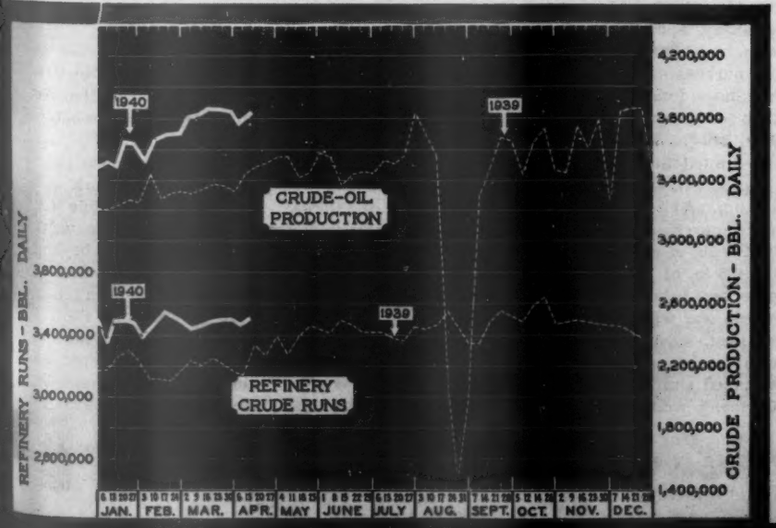
GASOLINE STOCKS *101,837,000 bbl. as of April 13—up 147,000 bbl. One year ago 87,285,000 bbl.*

RESIDUAL FUEL-OIL STOCKS *102,595,000 bbl. as of April 13 — down 2,504,000. One year ago 109,952,000 bbl.*

GAS OIL AND DISTILLATES *24,237,000 bbl. as of April 13 — up 686,000. One year ago 26,128,000 bbl.*

REFINERY RUNS *3,570,000 bbl. daily week ended April 13 — up 115,000 bbl. One year ago 3,330,000.*

Recent data on crude-oil stocks indicate that national crude-oil production should be reduced at least 200,000 bbl. daily from present levels, starting in May. Some are advocating larger reductions in order to remove from storage the crude that has been added since the first of the year. The Bureau of Mines monthly report issued last week showed that domestic production and imports of crude oil for the first 2 months of this year exceeded needs by 5,585,000 bbl. Since February 29, as shown in the accompanying chart crude-oil production has greatly expanded and the weekly B. of M. estimates reveal that from March 2 to April 6 a total of 7,671,000 bbl. of crude oil was added to storage, about 220,000 bbl. daily.


CRUDE-OIL PRODUCTION
REFINERY CRUDE RUNS
1940
1939
REFINERY RUNS - BBL., DAILY
CRUDE PRODUCTION - BBL. DAILY
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.

Approximately 5,000,000 bbl. or 65 per cent of this 35-day increase in inventories took place in Texas. The Illinois-Indiana area had an increase of 1,140,000 bbl., with smaller gains in Louisiana, New Mexico, and Kansas. There have been small decreases in California and Pennsylvania Grade crude storage since March 1.

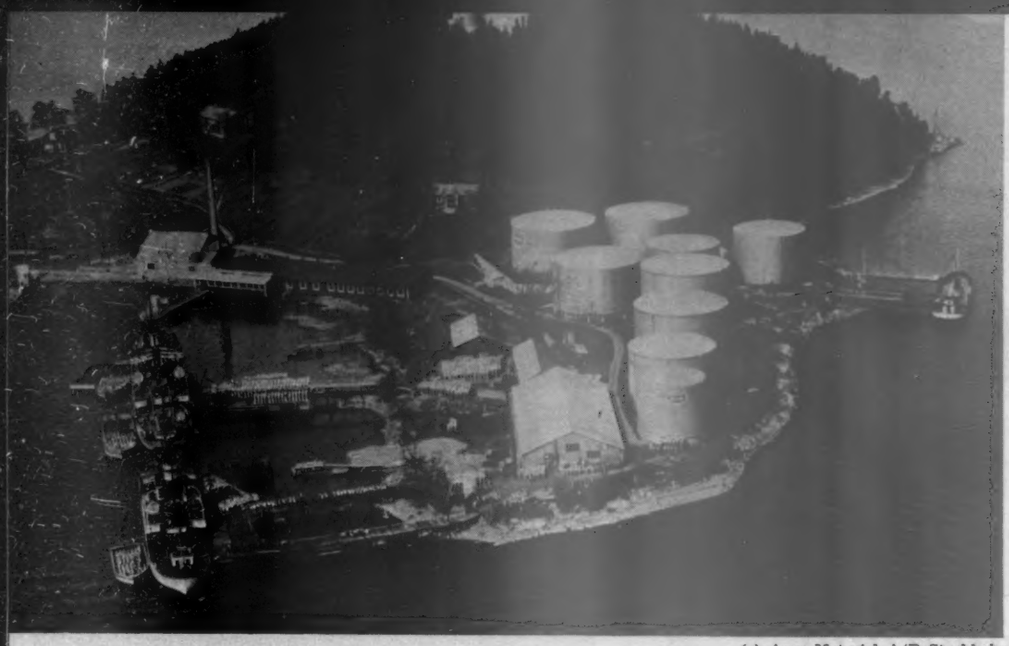
These data emphasize the need of substantial reductions in crude-oil production, particularly in Texas. The B. of M. has indicated that its May recommendation for national production will be around 3,600,000 bbl. daily, with the Texas recommendation at least 150,000 bbl. daily under the production of last week. While current reports continue to indicate that Illinois production has definitely passed its peak, some production is going to storage in

DAILY AVERAGE PRODUCTION FOR WEEK

	Apr. 13, 1940	Bur. Mines Apr. est. of demand	Apr. state allowables	Apr. 6, 1940
Oklahoma City	90,750	.....	.....	102,500
Seminole field	39,375	.....	.....	39,525
Remainder of state	282,175	.....	.....	278,750
Total Oklahoma	412,300	413,000	413,000	420,775
East Texas	396,939	.....	.....	396,889
West Texas	282,084	.....	.....	244,357
North Central Texas	131,550	.....	.....	132,884
Texas Panhandle	81,305	.....	.....	80,293
East Central Texas	87,956	.....	.....	82,146
Gulf Coast Texas	401,853	.....	.....	362,466
Southwest Texas	112,796	.....	.....	95,398
Total Texas	1,494,483	1,332,000	1,513,921	1,394,433
North Louisiana	69,335	.....	.....	68,010
Gulf Coast Louisiana	217,297	.....	.....	214,698
Total Louisiana	286,632	257,000	284,133	282,708
California	635,150	590,000	592,000	601,750
Kansas	176,400	151,000	151,000	175,350
Arkansas	68,930	64,500	70,000	69,250
Mississippi	7,650	3,900	.....	8,490
Eastern fields	108,000	109,300	.....	107,100
Illinois	421,754	380,000	.....	427,406
Michigan	62,130	63,000	.....	63,306
New Mexico	113,670	100,000	114,000	114,610
Rocky Mountain area	84,540	86,300	.....	89,560
Total United States	3,871,639	3,550,000	.....	3,754,738

that area, and there are no developments pointing to immediate increases in demand for Oklahoma and Kansas crude as a result of leveling off in middle western output.

In markets there have been few indications of improvement in gasoline despite the large increase in domestic shipments since the first of the month. Weakness in this product centers in the Gulf Coast area, reflecting in part the continued slow export market. It is feared that the extension of the war front into Norway will further complicate the tanker situation and will also reduce the exports to European neutrals. The strongest products in domestic markets are the burning oils and some grades of lubricants.



(c) Aero Material A/B Stockholm

Oil terminal just outside of Stockholm, Sweden

Changes I
Movem

By H. STANLEY NORMAN

The shifts in the war area involving the Scandinavian countries has a direct bearing on their petroleum needs and the movement of products from the United States and South American countries to that section of Europe. With Rumania threatening to shut off or curtail petroleum shipments to Germany, the next major change in the war front of significance to oil may be in the Balkans. These and other developments are discussed in this article.

NEW YORK, Apr. 15.—Spread of the European war into Scandinavia last week and the embargo of oil shipments from Rumania to Germany made impressive changes in the international petroleum situation. It will be impossible for several weeks to determine just how extensively the German invasion of Norway will affect the oil industry but the indications are far-reaching.

The vastly expanded naval, air, and land operations of the warring nations has definitely placed military consumption of petroleum on a much higher scale than at any time since hostilities started. As an offset, however, all peaceful commerce with the Scandinavian countries was halted abruptly. The neutrality zones in which no American boats are permitted were extended by presidential proclamation to include the new Scandinavian battleground. In the absence of word to the contrary, it was assumed that most normal peacetime activity had ceased, particularly in Norway. However, Norway, Sweden, and Denmark are not large consumers of petroleum.

By far the most significant impact of the war's spread on the petroleum industry is on the transportation end. If Norway should be eventually conquered by Germany, the invaded country's fleet of 262 tankers having combined deadweight of 2,957,000 tons will pass from Allied influence.

British broadcasts in Danish and Norwegian warned ships of the invasion, obviously with the hope that private owners would choose Allied or neutral registry, even though Germany should be successful in holding the invaded territory.

In retaliation for economic restrictions imposed by Germany upon shipment of certain essential commodities to Rumania the latter country ordered halted all oil and wheat exports to the Reich. At a time when Germany is making full use of its highly mechanized war machine, including the constant use of hundreds of large planes for landing troops in the invaded country this sudden cessation of Rumanian oil presents a real crisis. Also important is the fact that Rumanian oil shipments to Germany have been subnormal for 3 months because of the severe winter which made traffic along the Danube practically impossible. The argument between Rumania and Germany was intensified by a demand from the Reich that patrol of the river be turned over to Nazi boats. The Moniteur Du Petrole Roumain reports that Germany received only 18,455 tons (ton=7.336 bbl.) or roughly 138,000 bbl. of petroleum from Rumania during January, compared to 50,889 tons in December and the February exports of oil to the Reich have been unofficially reported at approximately 13,000 tons. Germany demanded river-patrol privileges after two loaded river tankers had been sunk and lost with full cargoes. Germany claimed that Allied sympathizers had taken advantage of the lax patrol system to mine the river at narrow points where a boat hull would disrupt the entire waterway system until removed. Rumania has so far denied Germany's patrol petition.

Norwegian steamship offices in New York could not go beyond speculation as to what may happen to the 262 tankers registered in that country. It appears doubtful that more than a few will fall under direct German control. Norway being a small consumer of petroleum itself, its tankers are customarily in foreign ports or on the high seas. The Norwegian fleet is usually widely scattered and it was considered logical in New York that owners would in most cases seek to change flags and thus keep them available for normal operations. In Washington, Secretary Hull implied that the United States would be disinclined to extend registry privileges to any large number of vessels, presumably because of the possibility it would be considered a non-neutral gesture.

For duration of the intensive action along the Norwegian coast petroleum shipments to Scandinavian countries will be made only on a severely restricted scale. The Scandinavians had made no extensive war preparations in storing large supplies of petroleum, according to the best information available in New York. This country alone supplied Norway with 135,853 bbl. of petroleum in January along with 231,350 lb. of grease, 342,840 lb. of wax, and minor volumes of petrolatum, asphalt, and liquefied gases. The United States exported 48,258 bbl. of oil to Sweden in January along with 96,559 lb. of grease, 165,142 lb. of petrolatum and 1,672,039 lb. of wax. Denmark received 7,895 bbl. of oil products from the United States in January, 4,000 lb. of grease, 86,910 lb. of petrolatum, and 1,005,818 lb. of wax. In February, Norway's purchases of petroleum products in the United States totaled 181,669 bbl. in addition to 37,012 lb. of grease, 83,577 lb. of petrolatum, and 244,791 bbl. of wax. Sweden's February purchases of United States petroleum totaled 251,071 bbl. of products, 461,717 lb. of grease, 39,570 lb. of petrolatum, and 2,229,955 lb. of wax. Denmark's February purchases totaled 147,572 bbl. of products, 96,279 lb. of grease, 64,270 lb. of petrolatum, and 949,496 lb. of wax.

A majority of observers believe the next major action of the European war will be in the Balkan area and the Near East, where vastly more important petroleum reserves are located. It has been generally presumed since hostilities started that eventually Germany would have to bid in some form or another for the petroleum reserves of Rumania, which was the line of action followed in the World War. As was the case in 1914, the Rumanian fields are reported to be thoroughly mined and would be sacrificed immediately if danger develops that they will fall into German hands. All of the oil fields in the Near East area, including Iran, Iraq, Bahrein Island, Arabia, and Egypt, are said to be equipped with devices for instant destruction in the event of occupation by an enemy power. In the winter campaign of the Allies preparing for the possible spread of fighting, which appears to be developing along predetermined lines, France and England stationed between 500,000 and 750,000 troops in the Near East territory. This massing of troops certainly more than infers the Allies feel positive that Germany will eventually turn to Rumania and the Near East when the economic blockade forces the Reich to renew its petroleum stocks. German propaganda claims sufficient fuel is available without new outside supplies to fight a major war of 10 years' duration. Oil men who had an opportunity to know at least in a general way something about German reserves and synthetic fuel-producing capacity before the war started, make a liberal guess that 2 years of major military operations would be Germany's limit without new supplies.

All recent information has been suppressed as to how much oil is moving from Russia to Germany, but both oil and military observers believe the traffic to be considerable, averaging, probably, in excess of 20,000 bbl. daily.

There have been no Scandinavian boats chartered since last week's seizure of Denmark and invasion of Norway and it was imposible for chartering companies to say whether the war's spread would have any immediate effect beyond the battle zones. A big majority of the Scandinavian tankers function under long-term charters and it was believed voyages outside the immediate battle zone would continue in a normal fashion. The American boat rates reflected no change that could be charged to the expanded warfare. Owners continue to ask from 65 to 70

In War Fronts to Affect ement and Use of Oil

cents per barrel for the coastwise trip, depending on the class of cargo.

A noticeable feature disclosed by an analysis of Rumanian petroleum export statistics for 1939, as pointed out by the March 1 issue of the Moniteur Du Petrole Roumain, is the change in the position of Germany and the growing importance of the river port of Giurgevo which now handles 28.8 per cent of the country's total traffic. There was a drop in the 1939 petroleum exports through Constanza of 591,433 tons and that port received only 66 per cent of the total business. Germany extended its position as the largest purchaser of Rumanian oil during 1939. Large increases were also registered by England, Czechoslovakia, and Italy. The most impressive decline was in exports to Egypt which drew a larger part of its requirements during the year from a new field developed during the latter part of 1938 by Anglo-Egyptian Oilfields, Ltd. Another impressive drop was in shipments to Spain which was the tenth ranking customer in 1938 because of the civil war.

All ready for the day's business at a service station in Copenhagen. Denmark has an automobile to every 27 persons, being surpassed in Europe by only Great Britain and France

WORLD TANKER FLEET

Country—	Number	Deadweight
United States	418	4,137,000
Great Britain	410	4,008,000
Norway	262	2,957,000
Netherlands	112	843,000
Italy	78	571,000
Panama	59	775,000
France	40	363,000
Japan	39	519,000
Germany	31	303,000
Canada	28	187,000
Sweden	17	217,000
Spain	16	115,000
Denmark	14	160,000
Belgium	9	97,000
Other British	32	325,000
Other countries	73	416,000
Total	1,638	15,993,000

Above: Snapshot of bulk station at Skallavick, Bergen

RUMANIAN EXPORTS IN JANUARY 1940, BY COUNTRIES OF DESTINATION

(Figures in tons)

	Total— Jan. 1940	Dec. 1939
England	118,956	139,880
Netherlands	.....	1,051
Belgium	.....	1,067
France	34,482	33,566
Italy	31,008	35,105
Switzerland	2,620	11,179
Germany	18,455	50,889
Bohemia-Moravia	9,791	31,034
Hungary	1,127	9,809
Yugoslavia	8,795	10,113
Bulgaria	3,953	11,133
Greece	13,941	9,595
Turkey	9,569	5,292
Gibraltar-Malta	553	.....
Egypt	36	1,745
Tunisia	18,484	17,975
French Morocco	6,567	6,662

The overrunning of Denmark by Germany and the invasion of Norway by the Reich troops who are occupying Oslo, the capital, is being combated by British naval attacks on the Norwegian coast and the landing of a British expeditionary force at Narvik, Norway's ore port. Sweden, fearing German invasion, has mined its southern coast

SPARKS . . . FROM THE NEWS

ILLINOIS ENGINEERING: Reports at eastern A.P.I. meeting reveal that engineers in Illinois have many accomplishments to point to in conservation and efficient operating practices despite the lack of state regulation.

PROFIT RECOVERY: The annual statements of the first 67 oil companies reporting show 1939 profits running slightly ahead of the previous year, a development brought about by the large increase in last quarter earnings.

MORE WAR: The war so far this year is responsible for a decrease of nearly 25 per cent in petroleum exports from this country. No immediate change in this situation is expected as a result of the startling extension of the war front into the Scandinavian countries.

EPIDEMIC: The urge to drill in Kansas is taking on aspects of an epidemic, the increase in activity being further exemplified the past week when more than 60 new tests, including wildcats in 7 counties, were reported—the greatest number of first reports in the state in 3 years.

OIL FRONT: If Rumania carries out its reported plan to stop or curtail oil shipments to Germany, war activity may shift to the Balkans and the Mediterranean, the eastern hemisphere's center of oil production and transportation.

FUTILE POOHPOOHS: Poohpoohing the country's excessive stocks of gasoline doesn't seem to have done much good. The market is still weak.

RETIREMENT: A Chicagoan who heads the syndicate which completed a wildcat well as a large producer in Crockett County, West Texas, is considering retiring from the restaurant business forthwith.

NO APOLOGY: Many things have been said against East Texas over a 10-year period but it still has the largest production, the largest reserves, the largest number of flowing wells and probably the largest operating profits.

THE TEST: Observers agree that the actions taken by state proration bodies over the next 2 weeks in regard to May allowables will be a major factor in determining market trends over the remainder of the year.

SPRING FEVER: Oil men who believe in possibilities of the Forest City basin are imbued with the drilling fever again, several long shutdown tests having been resumed and a number of new wildcats being started in the four-state area.

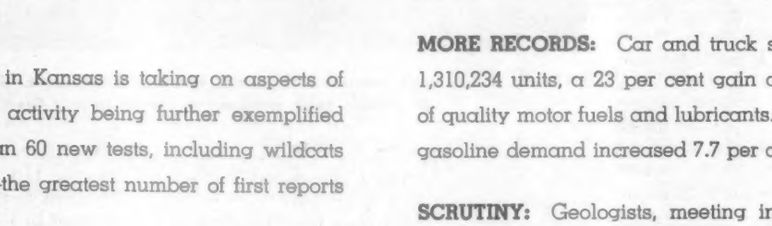
MORE RECORDS: Car and truck sales the first quarter totaled 1,310,234 units, a 23 per cent gain over last year—all customers of quality motor fuels and lubricants. This explains why domestic gasoline demand increased 7.7 per cent the first 2 months of 1940.

SCRUTINY: Geologists, meeting in annual convention in Chicago last week, carefully examined new evidence dealing with theories or origin, migration and accumulation of oil, and of the deposition of the sedimentary rocks which contain it. They also came to the conclusion that many cherished generalizations of the past need a lot of streamlining to pass muster.

ACTIVE AREA: Developments of the past week give further indications that southern Oklahoma and North Texas are assured plenty of activity over the rest of the year.

NO TEARS: Oklahoma and Kansas operators are not grieving as they see production in Illinois and Michigan level-off—two states which without asking took many of their markets the past 2 years.

PETROLEUM TERMINAL ON DANISH COAST . . .



A bird's-eye view of one of the oil depots of the Danske Petroleums Aktieselskab at Avernakke on the island of Funen. Due to its seizure by Germany, Denmark loses its neutral status and consumption of petroleum in this important European market will be restricted

Progress in Oil Conservation Lauded at Columbus

By J. P. O'DONNELL

COLUMBUS, Ohio, Apr. 12.—Highlight of the annual meeting of the eastern district, Division of Production, American Petroleum Institute, was the address by Gov. John W. Bricker, of Ohio, in which he declared "no group has utilized natural resources better in the interests of society than oil." Governor Bricker's address formally opened the meeting which drew 442 officially registered eastern oil and gas men to Ohio's capital.

Introduced by Chairman D. T. Ring, of Preston Oil Co., Columbus, as the man who "cut the financial coat of Ohio to fit the cost," Governor Bricker said we are all interested in the greatest utilization of our natural resources simply as a matter of good business. He questioned the right of public officials to take great credit for conservation. "Government," he said, "should only assist."

Governor Bricker was roundly applauded when he declared, "There is nothing better government could do for business than to keep down the cost of government." He said that bureaucracy feeds upon itself and is a constantly expanding thing that increases the burden of "the dead hand of taxes" on business. He lauded industry in general and oil in particular for its desire to pioneer, to experiment, its willingness to take a chance and its program of self-help. Only through the stimulation of private enterprise, the encouragement of business, can we better the condition of the country, he said.

Governor Bricker was followed by Roger Hutchings of the American Petroleum Institute's Department of Public Relations who also commended the system of free industrial enterprise that has developed the oil industry and deplored the trend toward regimentation. "I wonder if inventive genius, the risk of talents and of money can be planned," he asked. "I wonder if a man can be kept on dead center."

Left free and unhampered, the oil industry can continue to bring greater ease of living and greater benefits in the years to come, he predicted, because, "despite increased and increasing uses of petroleum and its products, the known reserves of petroleum in the United States today are the largest in history. Scientists now tell us that petroleum, hitherto regarded as an irreplaceable, nonrenewing natural resource, may still be forming underground at a rate faster than it is being produced. Deep drilling is finding oil at lower depths. Methods of secondary recovery are restoring to production pools and fields which supposedly were exhausted years ago. Within the past year a number of new and different refining processes have been developed which make available to the United States the only adequate supply of high-grade aviation fuel in the whole world. And right today those processes are capable of producing more fuel than all our planes can currently consume."

No known methods of refining "can increase the natural qualities of hydrocarbons and these qualities can be improved only by the inclusion of materials possessing them in greater degree than naturally occur in petroleum hydrocarbons," Arch L. Foster of Lubri-Zol Co., Cleveland, said in his paper on lubrication. Hhe showed the effects of additives in improving load-carrying capacities, reducing consumption and bearing weight loss and decreasing acidity, etc.

J. E. Moorhead, executive secretary of the Pennsylvania Grade Crude Oil Association, Oil City, Pa., said it is possible to make such improvements in all kinds of oils by the use of addition agents but that a good natural oil is the best base. He criticized the automotive industry for giving too little consideration to the lubrication problem in designing new cars, expressed the opinion that the lubricant manufacturer should be at least apprised of the problem before being faced with it directly, and urged greater cooperation between motor car and lubricant manufacturers.

Complications incident to the appraising of oil properties were discussed by G. F. Moulton, of Ralph E. Davis, Inc., Pittsburgh, Pa., in a paper prepared by Mr. Davis. This paper held that the real problem in oil appraisal is not "how shall we discount expected future annual net income to present worth?" but "What is the reasonable expectancy of future net income and at what annual rate is it likely to be won?"

Dr. E. V. O'Rourke of Ohio State University said that the big advances in the technology of production have to be changed into economic values and considered in appraisals and that it is important to consider old properties from the secondary-recovery standpoint.

Important factors in the installation of field compressor plants are site, water supply, topography and availability, H. H. Johnson, Belmont Quadrangle Drilling Co., Bradford, Pa., said in his paper. Considerations in the type of plant are the volume to be handled and the intake and discharge pressures. He cited the use of removable valves and opening of fixed clearing pockets when horsepower requirements become excessive, preferred the use of more small compressors than fewer large ones because of greater flexibility, and emphasized the use of oversize suction and discharge lines and a closed cooling water system. D. R. Croft, Ohio Fuel Gas Co., Columbus, Ohio, discussed the use of small portable compressors for individual wells or for a number of wells nearing exhaustion and reminded his audience that "it is more economical to push gas than to pull it."

(Continued on Page 36)

PAPERS AND ABSTRACTS

Two full-length papers presented at the Columbus A.P.I. meeting appear elsewhere in this issue. These are:

"Electrification of Pumping Equipment in Illinois," by R. E. Hammond. Page 44.

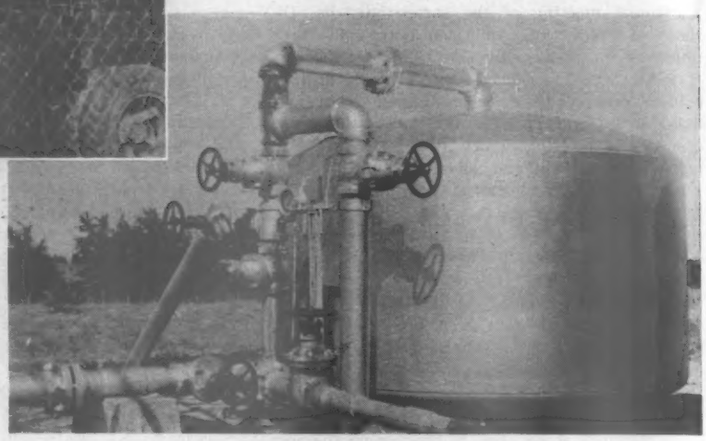
"Deep Cable-Tool Drilling in Appalachian District," by J. A. Fox. Page 62.

Abstracts of other engineering papers appear on Page 48.

Camera Catches Conventioneers

Officers of the Eastern Division of the A.P.I. (Top): Seated are C. A. Young, Dallas, executive secretary, Division of Production; DeWitt T. Ring, Columbus, retiring chairman, eastern division, and J. J. Schmidt, Cleveland, newly elected chairman. Standing: T. H. Myers, Pittsburgh, vice chairman; William S. Watkins, Mattoon, Ill., vice chairman, and I. W. Hartman, Mount Pleasant, Mich., vice chairman. Center: Fred Turner, Mount Pleasant, Mich.; H. M. McClure, Rex Oil & Gas Co., Alma, Mich., and H. M. McClure, Jr. Bottom: R. J. Sullivan, Mattoon, Ill., division engineer, Carter Oil Co.; Glen A. Hebard, Newark, N. J., production engineer, Pure Oil Co., and J. C. Askam, Ohio Oil Co.

East Texas Somewhat



Above: Pumping problems are being met by improved engineering methods, reducing investment costs, power requirements and maintenance. Right: Sand and gravel filter removes precipitants in salt water prior to injection to Woodbine

DURING these days which may mark the end of the current era of production control, East Texas looks back on an eventful year and forward to a questionable future. Increased salt-water production and the cumulative effect of the problems attending it require the greatest share of the East Texas engineers' attention.

Proration methods have been the dominant issues in the past several months, bringing the field to nationwide attention. Attacks against the Texas Railroad Commission's proration formula, alleging confiscation of property in the thick sand section are now in the courts. The requested revision of allowable production more closely conforming to the factor of oil in place is of vital import in any application today. When it directly concerns the largest oil field in the nation, it assumes even greater influence.

The purpose of this article is not concerned with the field's future. At this stage such an undertaking would be not only hazardous but of questionable value. But current conditions in the field as a result of recent and forthcoming developments are of particular interest at this time.

At the present time the proration case finds the commission granted a 60-day stay in execution of injunctions granted the Humble Oil & Refining Co. and Rowan & Nichols Oil Co. by the ruling of a three-judge federal court, pending appeal of the case to the United States Supreme Court. The commission's proration order as it affected certain of the two litigant companies' properties in East Texas was ruled unreasonable, confiscatory and void by the court on February 21. At that time, the court however, issued no ruling, but granted the state body 10 days in which either to revise its order or appeal the case. Despite popular opinion, the stay of execution was granted March 14 and proration in the field remains under the same schedule for the time being.

In preparation for a possible decision adverse to the present proration methods, several companies which can present cases similar to those of the two now in court are expected to do so. This will bring to a climax the situation at the end of the period set by the federal court.

Pressure-Production

Meanwhile it is of interest to review a number of developments and trends in production in East Texas over the past few years. The pressure-production relationship, salt-water production and disposal, total producing wells, artificial lifting methods, treating, natural-gasoline manufacture and refining figure in the composite picture of the field's current status.

Withdrawal fluctuations during 1939 and early 1940 rendered the monthly pressure surveys made by commission engineers of little value in following the month-to-month pressure-production relationship. The pressure reaction resulting from a change in withdrawal rates is so complicated as to make the average pressure of a certain date unreliable in reflecting the pressure of the period immediately preceding it.

Accordingly, little stress is laid on the monthly relationship as depicted in Fig. 1, and the yearly trends are substituted as being more characteristic of the field's history. Table 1 lists the pressure and production data for the past 4 years in East Texas.

In line with accepted practice, the average bottom-hole pressure as of the last day of each year is estimated, not from the pressure survey figure nearest that date, but from an average of surveys taken over a 4-month period. Thus the pressure of 1065.6 lb. per sq. in. assumed for December 31, 1939, represents the average of the pressures reported on the eighth days of November, December, January, February, and March.

The total oil production during 1939 was 146,969,889 bbl. Together with this oil, as estimated 60,000,000 bbl. of salt water was produced. The salt water production figure is estimated from reports of four surveys made by the commission during the year, and may be assumed as conservative from the nature of the reports made by operators to the control body.

Total displacement in the reservoir attending the year's production is derived by adding the salt-water production to 79 per cent of the oil production, allowing for shrinkage whereby one barrel of oil at the surface displaces 0.79 bbl. in the reservoir. On this basis of examining the pressure-production relationship, the pressure drop per million barrels of total fluid displaced in the reservoir increased 75 per cent from 0.131 in 1938 to 0.231 in 1939. On the economic basis of pressure drop per million barrels of oil produced and measured at the surface, the factor increased over 100 per cent from 0.136 to 0.280. The rapidly increasing salt-water production which almost doubled during 1939 is largely responsible for the decreasing recovery of oil on the pressure-decline basis.

The monthly production history of East Texas, shown in Fig. 1 depicts the immediate relationship between bottom-hole pressure at minus 3,300 ft. and production. The pressure changes from month-to-month are accentuated in the charting of pressure change per million barrels at the top. The irregularity of production averages beginning late in 1937 at the adoption of shutdown days as a curtailment measure may also be noted. The effect of increasing salt-water production, superimposed on the oil production chart, shows only

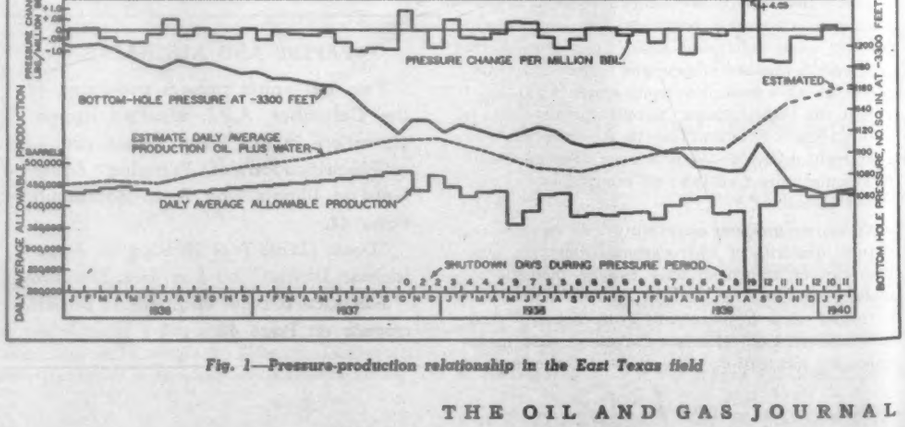


Fig. 1—Pressure-production relationship in the East Texas field

Looks Foward to Dubious Future

By GEORGE WEBER

the dates of the quarterly water surveys, and thus cannot be assumed to trace the actual monthly trend in total withdrawals.

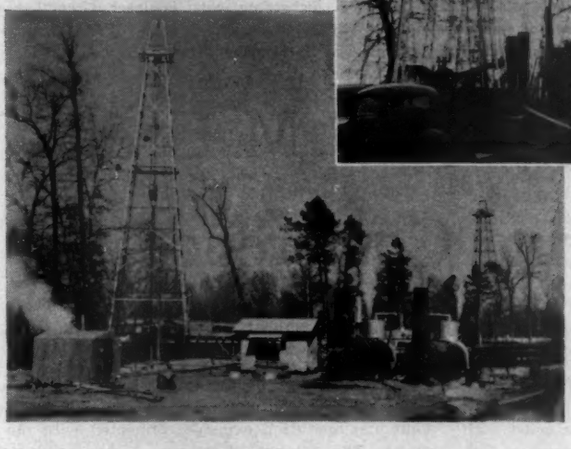
All data is plotted according to the commission's pressure periods, which began the twelfth of each month throughout 1936 and to November 1937, and thereafter begin on the eighth day of each month. Total producing days in each pressure period may be figured from the number of shutdown days listed during 1938, 1939, and 1940.

Trend in Total Wells

While it was believed a year ago that the total number of producing wells in East Texas was approaching its maximum, the same situation still holds today. Early in 1939 the commission drastically cut the volume of drilling permits for new wells, indicating the imminence of a downward trend in total producers. But through a limited resumption of the policy of issuing drilling permits on small tracts, the body has reversed the trend of a year ago, when in March, abandonments first exceeded new wells. It should be noted that while permits are still issued for new wells on tracts sometimes comprising only a fraction of an acre, the volume of new wells remained low throughout 1939, in comparison with previous completions. Overdrilling, the crux of East Texas' present proration difficulties, still continues in such areas as Kilgore.

New well completions for 1939 totaled 381, while abandonments continued in the predicated trend with a total of 269 wells plugged.

The outcome of the current proration case will have a definite influence on abandonment rates. Greater withdrawals for wells in the thicker-sand section of the field, unless offset by production curtailment of less fortunately located wells, will result in an increased water encroachment and declining pressures. The water encroachment will be felt in west side wells, and the pressure decline in east side wells. Reduced allowables on marginal wells would also spur abandonments. Although largely contingent on what trend production will assume this year, it may be assumed that abandonments will exceed new wells over 1940 as a whole, and the field will enter a period of declining numbers of producing wells.



Above: Drilling on small tracts, despite its obvious harm, continues in some areas

Left: Drilling permits were reduced during 1939, but still exceeded abandonments by 112 wells

Fig. 2 illustrates the trends in total wells during 1938 and 1939, listed in Table 2. The total of wells on production at the first of each month exclude: wells temporarily off production. During 1939, such wells averaged 175 in number each month. December 1 showed the largest number of wells on production, 25,988, and the latest total is reported at 25,939 producing on March 1.

A rapidly increasing salt-water production with its attendant problems of lifting, treating and disposal are of primary concern to East Texas engineers. The steady advance of water from the west side of the field is illustrated in Table 3. Total producing wells affected by the eastward movement had reached 4,405 by last November, the date of the latest water report on the field. In addition to the total number making water and oil, are several hundred wells which have been abandoned on the west side.

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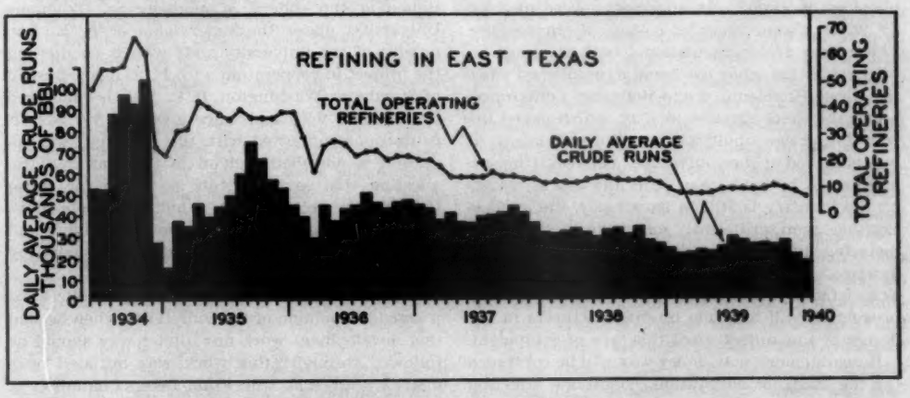


Fig. 4—Refinery operations in East Texas

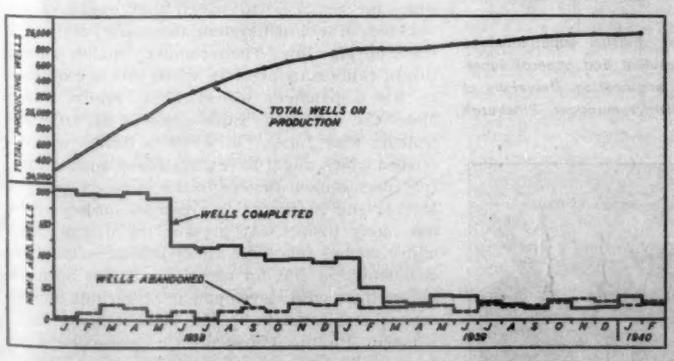


Fig. 2—Trends in new wells, abandonments and total producers

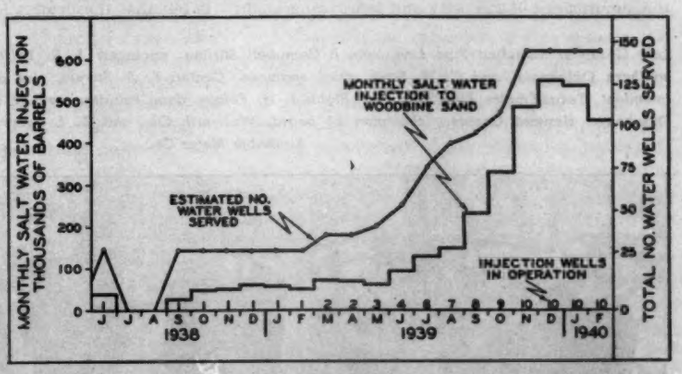


Fig. 3—Salt-water injection to the Woodbine sand

Frank Hadley, chief engineer, Sinclair Prairie Pipe Line Co.; John G. Norton, chief mechanical engineer, Magnolia Pipe Line Co.; Howard S. Bean, senior physicist, Bureau of Standards; E. O. Bennett, chief engineer, Continental Oil Co.; S. S. Smith, superintendent, Shell Pipe Line Co.; F. E. Richardson, chief engineer, Great Lakes Pipe Line Co.; W. H. Carson, dean, college of engineering, University of Oklahoma, and E. W. Jacobson, assistant mechanical engineer, Gulf Research and Development Co.

Petroleum Div. A. S. M. E. and Fluid-Metering Conference

By PAUL REED

THE Petroleum Fluid-Metering Conference sponsored by the Petroleum Division, American Society of Mechanical Engineers, conducted with the cooperation of the college of engineering, University of Oklahoma, at Norman, April 11 and 12, has significance for the entire industry. It is obvious that the influence of the conference will be far-reaching. This was held in conjunction with the meeting of the Petroleum Division, American Society of Mechanical Engineers, April 12 and 13, at which papers were presented by executives and engineers connected with the industry and by members of the university staff on subjects of vital concern in the conduct of producing, refining and pipe-line operation. Arrangements were directed by W. H. Carson, dean of college of engineering. There were 310 registrations at both meetings.

In reviewing what has been accomplished since the first Petroleum Fluid-Metering Conference, under the same auspices in 1938, which paved the way for meter application and development, it was observed at the conference last week (the second one to be held) that while the use of meters by the industry is still in its infancy, the application has been sufficiently extensive to show that metering has become definitely an established practice. Although results are generally regarded as satisfactory, it is expected that considerable improvement will be made by manufacturers in the design and manufacture of this type of equipment.

Research work now under way will be continued for the study of calibration, conditions affecting accuracy, pressure drop and slippage, as well as the significance of viscosity and lubricating qualities. Consideration of physical factors has an economic value, since it leads to keeping down investment and operating expense connected with metering. The amount of money to be saved by metering has been particularly emphasized by the paper delivered by W. G. Heltzel, Stanolind Pipe Line Co., at the first conference 2 years ago and by information given at the second conference last week by E. O. Bennett, Continental Oil Co., and S. S. Smith, Shell Pipe Line Co.

Study Calibration of Meters

A research program has been in progress for the study of calibration of meters which will be continued at the college of engineering, Oklahoma University, under the supervision of E. E. Ambrosius of the university staff who is conducting the project in cooperation with H. S. Bean, Bureau of Standards, Washington, D. C. This is sponsored by A.S.M.E., with assistance given by various organizations connected with the industry. Consideration is now being given to the matter of requesting that arrangements be made for using two or more fluids, one of which will have lubricating qualities approaching those of butane and propane. Results will be useful for all operating branches of the industry.

In the course of discussion, W. G. Heltzel expressed the opinion of the conference when he said that development work now under way should be followed through; this work was initiated originally by A.S.M.E.; the Fluid-Meters Committee of this society has been active for nearly 50 years. It is felt that the project is of such importance that it should be carried on as a joint program of committees of A.S.M.E. and A.P.I.

An event of the conference was the round-table discussion Friday morning led by S. S. Smith, Shell Pipe Line Co., on "The Use of Meters in Gasoline Pipe-Line Service." This was adjourned for a free discussion in the afternoon which lasted 2 hours, in the course of which he commented on savings obtained by metered pipe-line operation, the cooperation of meter manufacturers, and the degree of accuracy observed on his company's gasoline line between Wood River, Ill., and Lima, Ohio. Meters have proved to be better than tank gages. At stations along the line gasoline, which is being taken from the line, is frequently loaded into tank trailers and tank cars simultaneously. He pointed out that the proper way to get results out of meters is to be thoroughly determined to make them work. In the construction of this line, the bridges were burned behind him, since the line was deliberately designed with no provision for operating without meters. Operation of a products pipe line calls for an exactness which requires military discipline.

The metering program conference began with "Viscosity and Its Effect on the Accuracy of Positive Displacement Metering," by J. W. Donnell, university staff, in which he reviewed scientific definitions of viscosity, laboratory determination and the effect of viscosity on the accuracy of meters and the calculating of oil which would slip by moving parts.

At two points on the program E. E. Ambrosius spoke of what is being done in cooperation with H. S. Bean in the work of defining the various types of meters for reference in future investigations; he also described methods used in research.

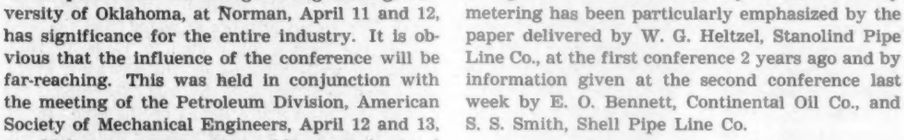
Comprehensive treatment of the subject of the conference was given by E. W. Jacobson, Gulf Research & Development Co., in "Some Fundamental Considerations in the Design and Application of Displacement Meters." In this he mentioned that the claimed standard of measurement, with inaccuracy of less than 0.1 per cent, has been closer than is commercially practical. Pack and film-type meters each have their particular field of application. In dealing with economic considerations governing the installation of displacement meters, attention should be given not only to the cost of the meter, but also to the additional expense of adequate liquid-conditioning equipment, calibrating devices and regularly performed maintenance operations.

In discussing "Crude Production Measurement," E. O. Bennett, Continental Oil Co., described metering practices applied at Tepetate, La.; Billings, Okla., and K.M.A., Tex. Before the installation of metering, 18 per cent losses in crude were experienced at Tepetate. Operation of meters under various pressure conditions and the importance of master meters in connection with metering operations were also mentioned.

Henry Pohl and E. H. Counts, Sinclair Prairie Pipe Line Co., presented "Calibration of Meters in Pipe-Line Service," in which they spoke of advantages of a closed system at certain points on a crude-oil pipe line. Their company makes a practice of calibrating at times when this is requested by the dispatcher's office. H. S. Smith, Smith Meter Co., discussed "Elimination of Air from Petroleum Pipe Lines," in which a device was described which might have a variety of applications. In "Displacement Meters in the Refinery," W. H. McCoy, Gulf Refining Co., covered a subject which has many phases. At present the displacement meter plays a relatively minor role in refinery instrumentation, but for some time it has been believed that, with development of certain modifications, meters might become valuable tools. W. L. Kitsman, Phillips Petroleum Co., presented a pa-

(Continued on Page 31)

Left: Group of Stanolind Pipe Line men, J. Campbell Stirling, engineer; J. E. Polston, division superintendent, southern Oklahoma, and C. M. Scott, chief engineer. Center: F. A. Stivers, vice president and general superintendent, Texas-Empire Pipe Line Co. Right: J. H. Felgar, dean emeritus, college of engineering, University of Oklahoma; Howard Coonley, chairman of board, Walworth Co., and A. J. Kerr, district manager, Pittsburgh Equitable Meter Co.



Congress Eyes Tankers and Marketing Divorcement

By HENRY D. RALPH

WASHINGTON, D. C., Apr. 15. — The legislative situation with respect to petroleum bills has become somewhat jumbled, and as a result there is an increase in the possibility that Congress may take some action affecting the oil industry before the end of this session.

There were two surprise moves last week, first when the House committee on merchant marine and fisheries voted to investigate the oil-tanker situation although the House itself did not authorize this, and, second, when the House judiciary committee surrendered jurisdiction of the Harrington marketing-divorcement bill on which it has held hearings and asked that the bill be referred to the committee on interstate and foreign commerce.

The Harrington bill (H.R. 2318) was introduced in January 1939 and hearings were held on it by a subcommittee of the judiciary committee last summer. In brief, this bill would make it unlawful for any person to engage in the marketing of refined-petroleum products directly or through an affiliate while also engaging in production, refining, or transportation of petroleum. This bill is now before the petroleum subcommittee of the House commerce committee which is headed by Rep. William P. Cole, Jr., of Maryland. It has been known for some time that Mr. Cole felt his subcommittee should handle all oil legislation, but it is virtually unprecedented for a bill to be transferred from one committee to another after the first committee has held hearings. The transfer was agreed upon by the House on the request of Chairman Sumners of the judiciary committee, who offered no explanation.

Cole Considering

Speculation at once arose as to the intentions of Representative Cole now that he has the Harrington bill before his subcommittee. Also pending before his subcommittee is the bill (H.R. 7136) introduced last summer by Rep. Ed. V. Izac of California to divorce pipe lines from other branches of the industry. The official explanation is that the Cole subcommittee should handle all oil legislation, but the question of immediate interest is how these divorcement bills will tie in with the committee's action on the Cole oil-control bill. It will be recalled that spokesmen for independent oil jobbers opposing the Cole bill declared that the greatest need in the oil industry is divorcement of marketing or pipe lines or both from other branches of the industry. It may be that Mr. Cole is considering combining a divorcement provision with a revised form of his production-control bill in order to reduce opposition to federal regulation of conservation. On the other hand, Mr. Cole may be able to hold off administration pressure for favorable action on the production-control measure with the explanation that his subcommittee must now study the divorcement question before making a final decision on the regulation of conservation. No hearings have been held on the Izac pipe-line bill, but it would be possible for the Cole subcommittee to take action on the Harrington marketing-divorcement bill on the basis of the hearings held by the judiciary committee.

The tanker investigation was voted by the merchant-marine committee on its own motion. On March 21 Rep. Vincent F. Harrington of Iowa introduced a resolution directing the merchant-marine committee to make an investigation of this type, and the bill was referred to the House committee on rules, which took no action on it. However, without waiting for authorization by the House itself, the merchant-marine committee directed a subcommittee to conduct an investigation. The subcommittee's investigation will have a legal status similar to an investigation directed by a vote of the House except that no special funds have been authorized for it and the committee may have less power to compel attendance of witnesses if this should become necessary.

The subcommittee is headed by Rep. Howard J. Hart of New Jersey and includes Representatives J. Hardin Peterson of Florida, Jack Nichols of Oklahoma, Vincent F. Harrington of Iowa, Joseph J. O'Brien of New York, and Harry Sandager of Rhode Island. The subcommittee will meet the middle of this week to map out plans for its investigation. The resolution adopted by the merchant-marine committee directs the subcommittee to investigate and report on:

1. The ownership, registry, and operation of oil tankers owned by domestic corporations or their affiliates and engaged or used in international trade.

2. The ownership, registry, and operation of oil tankers and barges owned by domestic or foreign corporations or their affiliates and engaged in coastal, river, and harbor trade.

3. The activities of persons, firms, and corporations in transferring oil tankers from United States registry to foreign registry and the effect thereof on (*a*) the rates for transportation of oil by tankers; (*b*) the prices of domestic petroleum products; and (*c*) the prices charged merchant ships for bunker fuel.

4. The chartering, leasing, or other hiring of oil tankers by their owners and the extent of such activity as between supposed competitors.

5. The relations — corporate, contractual, or otherwise — between the producers, refiners, and marketers of petroleum products on the one hand, and the operators of oil tankers and barges on the other hand, and the effect of such relations on (*a*) the independent nonintegrated producer, refiner, or marketer of petroleum products, and (*b*) the consumer of petroleum products.

In the Senate the judiciary committee will begin holding hearings this week on a resolution introduced by Sen. Gerald P. Nye of North Dakota providing for an investigation of the production, transportation, sale, and distribution of natural gas and petroleum. While this resolution is couched in broad language, Senator Nye has stated that his chief interest is in the suits now pending in the federal court in Delaware charging the Columbia Oil & Gas interests with anti-trust violations in connection with certain gas pipe-line operations. He has expressed the fear that these suits might be settled by consent decrees which would be injurious to many communities purchasing gas from this system. Also pending before the Senate judiciary committee are bills calling for the divorcement of pipe lines, marketing, and tanker operation from other branches of the petroleum industry, but no action has been taken on any of these.

A new pipe-line bill (S. 3753) has just been introduced by Sen. Edwin C. Johnson of Colorado which would prohibit the construction of a new oil pipe line or extension of an existing line without a certificate of public convenience and necessity from the Interstate Commerce Commission. This bill has been referred to the Senate committee on interstate commerce.

The Cole committee has formally closed the record on the production-control bill and the hearings are now being indexed for printing. Mr. Cole has indicated that the subcommittee will not act on the bill until the printed hearings are available.

Margold's Brief

One of the last pieces of evidence to be filed for this record was a brief upholding the constitutionality of the Cole bill, prepared by Nathan R. Margold, solicitor of the Department of the Interior. This brief is in direct answer to the brief filed by Jack Blalock on behalf of the Interstate Oil Compact Commission in which Mr. Blalock undertook to show that the Cole bill could not be held a valid exercise of the powers of Congress under the interstate commerce, national defense, or any other clause of the constitution. The Margold brief, as might be supposed, draws exactly opposite conclusions and finds that regulation of petroleum production is a perfectly legal and proper function of the federal Government.

The brief states that since there is no longer any argument that Congress can control petroleum production if it affects commerce, the only thing left to ascertain is the determination of how close a relationship exists between commerce and waste in oil production. Mr. Margold answers this question to his satisfaction by quoting from court decisions, testimony before the Cole committee and the Temporary National Economic Committee, and other sources purporting to show that wasteful methods of production directly affect cost, volume, and channels of movement of petroleum in interstate commerce. His brief also takes issue with the Blalock argument that the only war powers of Congress relating to petroleum are powers to purchase reserves of oil above or below the ground. Mr. Margold contends that in time of war Congress could do everything necessary to prosecute the war, including the regulation and conservation of oil needed by the fighting forces, and he declares that the same things may be done in time of peace if in furtherance of the national defense and preparedness. Other sections of the brief argue the points that the Cole bill would not violate any of the rights guaranteed to states and individuals by the constitution, and that the bill would not be an unconstitutional delegation of legislative powers to the commissioner proposed to be appointed.

STATE CAPITALS...

ILLINOIS

AN OIL SEVERANCE TAX MEASURE will be introduced in the forthcoming special session of the Illinois Legislature which has been called for April 30, according to information received from sources close to Gov. Henry Horner.

The governor's call has taken precedence over a similar order summoning the general assembly issued by Lt. Gov. John Stelle, which was released during closing hours of a bitter Democratic intraparty primary campaign. Mr. Stelle, an outright antiprorationist, was overwhelmingly defeated in a race for the gubernatorial nomination by Harry B. Hershey, former chairman of the state Democratic Central Committee.

Despite the issuance of a claim that he is acting governor, Mr. Stelle's legislative call was not sanctioned officially with the state seal by Secretary of State Edward J. Hughes, and Atty. Gen. John E. Cassidy has consistently affirmed the action is illegal.

The assembly has been called principally to enact measures permitting an increase in old-age assistance grants which will necessitate an increase of approximately $4,500,000 annually in state expenditures. Administration leaders are determined to press for passage of a 3 per cent severance tax law. If the proposal is approved, it will wipe out the greater portion of any deficit that may result. The assumption is based on current daily production in the state's oil basin which has been averaging more than 400,000 bbl. for the past few weeks.

A number of factors may forestall such action. Lieutenant Governor Stelle said in a press conference a short time after the April 9 election that he still considers himself acting governor, challenging Governor Horner's right to hold office under terms of the disability clause of the state constitution. The executive has been in failing health for almost 2 years.

On April 13 a resident of Bloomington in McLean County filed a mandamus suit in Circuit Court ordering Mr. Stelle to assume duties of the office. Action on the motion apparently will be delayed for some time.

Mr. Stelle's action is unprecedented in annals of the state government. Future possibilities of his move are therefore improbable. It is assumed, however, that a legislative inquiry into the governor's ability to administer his affairs may be launched in impromptu fashion when the legislature convenes.

MICHIGAN

THE MICHIGAN CONSERVATION COMMISSION at its May meeting will be asked to approve drilling regulations applying exclusively to the south half of the Wise field in Isabella County. The state Oil Advisory Board and P. J. Hoffmaster, supervisor of wells, will recommend that drilling be limited to two wells per 40 acres, instead of four as at present. The restrictions were asked by operators in the field, including Cities Service Oil Co., Cryden Petroleum Corp., and Turner Petroleum Corp., on the assumption that gas pressure will be maintained longer and ultimate recovery from the field will be increased.

CALIFORNIA

THE CALIFORNIA DEPARTMENT of Natural Resources has finally worked out a method whereby gas waste in the Montebello extension will be almost entirely eliminated. The new plan is to store gas in the Buena Vista section of Kern County and replace it with that produced at Montebello. It has taken almost a year to work out this simple method of handling the situation. Under the arrangement Industrial Fuel & Supply Co. will cut down its deliveries from San Joaquin Valley and take deliveries at Montebello where operators are producing under an injunction issued by the Superior Court in Los Angeles more than a year ago but modified at various times since. The situation called for immediate action as the gas demand in southern California has already dropped off as a result of warm weather. Under the new setup it is expected that the increased takings of Industrial Fuel & Supply Co. will reduce gas waste to a very small amount.

OKLAHOMA

THE OKLAHOMA CORPORATION COMMISSION granted 5-acre well spacing in certain areas of Tulsa County in which the Bartlesville sand is a common source of supply.

C. C. Cummings applied for the order, which covers the NW Section 1-19-13, S½ SW Section 36-20-13, SE SE Section 36-20-13, and E½ NE Section 2-20-13.

No producing well has been drilled but logs of dry holes indicate a narrow body of producing sand at 1,100 ft.

STANOLIND OIL & GAS CO.'S application for 20-acre oil-well spacing in the North Wewoka field, Seminole County, was granted by the Corporation Commission. The order involves 640 acres.

GOV. CARL E. BAILEY of Arkansas will address the National Petroleum Association on April 18 at its thirty-seventh semiannual meeting in Cleveland, Ohio. The address will be broadcast over NBC network from 2 to 2:30 p.m. Governor Bailey was one of the most effective witnesses who went to Washington to oppose passage of the Cole oil-control bill. Basing his opposition to the bill on constitutional grounds, he has declared that if oil and gas were being wasted by the choice of the people, it would be better so than for our form of government to be changed by subversive processes so as to vest monopolistic powers of government in the hands of officials not elected by the people

TEXAS

THE MATTER OF CONFORMING crude-oil production in Texas to U. S. Bureau of Mines estimates of demands will be threshed out at the April 18 state-wide hearing of the Railroad Commission. Commissioner Ernest O. Thompson is on record as favoring a 90-day order covering May, June and July, which will adopt the bureau figures as the state allowable, but Commission Chairman Lon A. Smith and Commissioner Sadler were doubtful if the change could be made as quickly as next month.

The meeting on Thursday will follow an inventory of the oil situation. Some time ago Chairman Smith sent a telegram to Commissioner Thompson in which he said that in advance of the inventory he would not commit himself to an iron-clad rule to follow the Bureau of Mines estimate. He added, however, that he was certain the commission will have "out-of-line adjustments" corrected at the hearing "and it is my opinion for the month of May we should remain within the bureau estimate."

He affirmed the commission's recently readopted policy of refusing to grant special allowable increases during the month, observing that if such a policy were adhered to during April the commission can attain the point of restricting the flow within the federal estimate.

Commissioner Jerry Sadler, while in general harmony with the idea of holding within the federal estimate, expressed himself as not sure such a goal can be attained in May. He is withholding a commitment until he knows the amount of the federal estimate for May and also determines his own estimate of market demand. He has conditionally declared for a 90-day order, but does not believe it can be adopted before June.

Currently, Texas' calculated daily average allowable for the month is 194,000 bbl. daily in excess of the federal estimate of a demand for 1,332,000 bbl.

RAILROAD COMMISSIONER Ernest O. Thompson warned on Monday that unless the nation curtails its oil output soon, another long production shutdown similar to the one of last August may become necessary.

TEXAS RAILROAD COMMISSION lodged with the Supreme Court of the United States papers asking that Judge Robert J. McMillan of the western Texas federal District Court be compelled to assemble a three-judge court to hear litigation in which the Stanolind Oil & Gas Co. seeks to invalidate a commission order authorizing the drilling of eight additional oil wells in Gregg County.

The motion for leave to file the papers with the court as a petition will be formally presented April 22, when the court reassembles after a 2-week recess.

The commission in February authorized W. D. Ambrose to drill the eight additional wells on his leasehold in the East Texas field. The Stanolind company sought an injunction, contending that the drilling of additional wells would result in a deprivation of its property without due process of law.

The Railroad Commission then asked the district judge to postpone consideration of the application for an injunction until a three-judge District Court had passed upon it. Judge McMillan overruled the motion and granted a temporary injunction restraining Mr. Ambrose from drilling the eight wells.

JOHN D. COPELAND, JR., of Austin, former examiner for the Railroad Commission Oil and Gas Division, has announced his candidacy for railroad commissioner.

Mr. Copeland invented and installed the "tender" system now used by the Railroad Commission in eliminating the production of oil in excess of the allowable. He is 35, a native of Austin; attended both the University of Texas and Southern Methodist University, and is a graduate of a business college.

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

No Longer Byproduct

The announcement by a major company that its maximum contract prices for furnace oil, in a large eastern consuming center, for 1940-41 will be 1 cent higher than in the season now closed should be classed as first-page news for the oil industry.

It is to be hoped that this action may serve as a guide for the operations of other companies in all parts of the country to the end that in the future more satisfactory returns may be obtained from those fractions of refinery yields ranging between gasoline and residual fuel oil.

In the past there has been a tendency to consider furnace oil, gas oils and other oils of similar specifications in the nature of byproducts, which could be sold with little regard to the prices received.

These heating oils are consumed in homes, institutions and buildings which usually are supplied on a yearly contract entered into by the oil companies, the distributors, and consumers several months in advance of the date of the first delivery. Refining and marketing organizations are now engaged in closing 1940-41 contracts for the consuming period which starts September 1.

Because of the byproduct angle, and because many companies apparently fear there will not be sufficient outlets for the expected production, the tendency has been to guarantee prices which have not been in line with cost of production and the service rendered.

As an illustration, over a large part of the eastern section of the country furnace oil was delivered to consumers this season at less than 7 cents a gallon.

It is apparent that this price does not cover the actual cost of the crude oil, refining, transportation from the Gulf Coast, movement inland, and tank-wagon distribution, together with other services that have been given to consumers.

It has to be kept in mind also that these fractions of crude oil are sold not only as furnace oil but as diesel oil and burning oil and demand is increasing rapidly.

For the first two months of this year the total demand for gas-oil and distillate products, as classified by the governmental reports, increased 22.5 per cent and kerosene increased 10.5 per cent, in contrast with an increase in the demand for gasoline of 4 per cent. The gains in the demand for these products were similar to those of 1939.

There are hundreds of thousands of cases in which the yearly purchases of furnace oils, tractor fuels, diesel fuels and kerosenes for light and heat exceed the purchases of gasoline. Many of these markets involving new uses for petroleum are just getting started and are certain to expand rapidly over the next 10 years.

There is the further fact that what is received for these burning and heating oils has a direct bearing on price trends for several other refinery products and the crude oil from which they are refined. These gas oils and distillates can be sold as finished products or they can be utilized at refineries as raw material for the cracking operations. Thus they are directly competitive with crude oil in the production of gasoline.

Obviously, failure to obtain the full competitive value of these oils as fuels creates a depressed market situation which reacts back to the posted price of the crude at the wells.

Needed price readjustment, of course, does not necessitate any large increase in the cost to consumers, which would affect the competitive position of these oils in relation to other fuels. It simply means that these products, which now represent a substantial part of a barrel of crude oil, should be priced for profits and not byproduct losses.

New International Attendance Record Expected at Exposition

A record for international attendance was assured for the eleventh International Petroleum Exposition in Tulsa, May 18 to 25, when a cablegram was received by Pres. W. G. Skelly stating that three engineers representing the Japanese nation are en route to Tulsa for the exposition.

This notification makes the nineteenth country which has promised to send delegates to the oil show this year, as compared with the total of 18 countries which were represented during the last show, held in 1938. Exposition officials expect a total of 25 countries to send delegates to this year's exposition.

The three Japanese engineers, representing the Nippon Oil Co., Tokio, are Ryozo Niijima, Shigeru Yamanouchi, and Komao Tachikawa.

The 19 countries which have assured the exposition that they will send delegates include: Greece, Colombia, S. A., Turkey, Mexico, Great Britain, Canada, Dominican Republic, Germany, France, Trinidad, B.W.I., Cuba, Russia, Rumania, Argentina, Peru, Ecuador, Italy, Venezuela, and Japan.

The deadline for entries in the International Petroleum Exposition safety contests for the May 18 to 25 Tulsa oil show has been extended an additional 10 days, according to a decision announced by R. S. Huffman, chairman of the safety contest committee.

The safety contests have been planned to include foremen and supervisors and drivers of company-operated trucks and passenger automobiles, and 12 individual prizes will be awarded to the winners on the basis of their accident-free records. These awards of gold engraved watches will be made during the safety banquet to be held Thursday, May 23.

In the photo W. G. Skelly, president of Skelly Oil Co. and of the International Petroleum Exposition, greets P. H. Bohart, assistant to the vice president of Gulf Oil Corp., chairman of the exposition committee of the Tulsa Chamber of Commerce. Mr. Skelly and

other officers and directors of the exposition were hosts at a dinner last week at which the exposition committee chairmen reported on all phases of activities at the exposition to be held in Tulsa May 18 to 25.

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Fractionation Discussed Before Cincinnati A.C.S. Meeting

CINCINNATI, Ohio, Apr. 12.—Refinery operators and researchers who attended the spring meeting of the Petroleum Division of the American Chemical Society at the Hotel Netherland April 8 to 12 heard numerous reports on methods for closely fractionating petroleum. The importance and timeliness of the discussion was demonstrated by Dr. Gustav Egloff, of Universal Oil Products Co., when speaking at a conference here he said "if and when triptan," which he described as 2-2-3 trimethyl butane, "can be commercially isolated or prepared from petroleum, the industry will have a fuel which will produce 50 per cent more power than 100-octane gasoline, assuming high-compression motors are built to utilize the respective potential value of each."

ABSTRACTS

Of papers before the spring meeting of the American Chemical Society at Cincinnati, Ohio, April 12, are published on Pages 57-59 this issue.

For the close fractionation of oil in the laboratory H. S. Lecky and R. H. Ewell, of Purdue University, described a tower containing spirally-wound screen packing. Again emphasizing the advantages of close fractionation, B. J. Mair and Anton Streiff, of the National Bureau of Standards, reported isolation of normal dodecane, naphthalene and 1-methyl naphthalene from kerosene. This work was done under the A.P.I. program of fundamental research. The isolation of other complex hydrocarbons in the kerosene fraction was reported by L. M. Schenck and J. R. Bailey. Their statements were based upon work at the University of Texas.

DEATHS

E. T. NOBLE, Okmulgee, Okla., drilling contractor, died suddenly in Tulsa.

WILLIAM D. BLOODGOOD, president and a director of North Central Texas Oil Co., Inc., died on April 8 in New York.

EDWARD B. RICH, 56, a former oil operator of Tulsa, died at his home in Parkersburg, W. Va. He operated in the Mid-Continent many years.

GEORGE THOMAS WARD, 67, Wichita Falls, Tex., died unexpectedly last week at Hot Springs, Ark. He had been engaged in the oil business since 1922.

SAMUEL YOUNG RAMAGE, SR., 86, prominent in the early development of oil in the Oil City district, died April 15 in a Durham, N. C., hospital.

ERNEST C. ROOT, 48, partner in R. & H. Oil Co., of Hutchinson, Kans., was stricken by heart disease in his car near Hutchinson April 13 and died.

H. B. SPENCE, 35, executive secretary of the Permian Basin Association, oil protective group, was killed near Odessa, Tex., when his automobile went out of control after hitting a dip.

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Gulf Honors Veterans at Series of Banquets

The Gulf Oil Corp. is now engaged in a program of honoring employes who have had a record of 10 or more years of continuous service with the company. The program consists of a series of guest-of-honor banquets held in oil centers in the United States, at which the employes are given diamond-studded pins and service certificates. Veterans of 10, 20, 25, 30 and 35 years, a total of 10,000 employes throughout the Gulf organization, are being so honored.

Typical of the affairs that are being held is one staged in Tulsa last week. Col. J. Frank Drake, president of the Gulf Oil Corp., and H. L. Stone, of San Angelo, Tex., executive vice president and general counsel, were speakers. Rush Greenslade of Tulsa, vice president of Gulf and head of the Gypsy Division, was toastmaster and awarded the pins and certificates to 503 employes and annuitants. Also at the speakers' table were P. H. Bohart, assistant to Mr. Greenslade, and James B. Diggs, head of the legal department of the Gypsy Division.

The oldest person in point of service to be honored at the Tulsa gathering was E. T. Gattrell, who was a veteran of 36 years of active service with the company at the time of his retirement in 1939. Appointed superintendent of pipe lines in Tulsa in 1910, he had advanced to the position of general superintendent of pipe lines for the Tulsa pipe-line division of the Gulf Refining Co. at the time of his retirement.

In his address, Colonel Drake paid high tribute to F. A. Leovy, vice chairman of the Gulf directorate. He reviewed the history of the Gulf organization, dating from Spindletop early in 1901.

E. T. Gattrell, retired general superintendent of pipe lines for the Tulsa pipe line division of the Gulf Refining Co., and oldest person in point of service to be honored by the Gulf Oil Corp. at its Tulsa banquet, is shown receiving his 35-year service award from Rush Greenslade, vice president of Gulf. Also present in the picture, reading from left to right in back of the microphone, are P. H. Bohart, assistant to Mr. Greenslade; Col. J. Frank Drake, Gulf president; H. L. Stone, Gulf executive vice president and general counsel, and James B. Diggs, head of the legal department of the Gypsy Division

THE MARKETS*

CRUDE OIL: Production in the United States last week was 321,639 bbl. a day higher than the federal Bureau of Mines estimate of demand. An increase of 116,901 bbl. in daily production over the previous week's total brought crude output up to 3,871,639 bbl. per day. Texas and California were responsible for the increase. Illinois' production was about 34,000 bbl. a day under the peak for that state.

REFINERY: Gasoline market still disappointing. Tank-car prices, instead of strengthening, as they normally do at this season, are barely holding, and in coastal regions there are fears of recession unless consumption passes output soon. Difficulties rising from burdensome stocks have been increased by late developments in the European War. Belated cold spells enabling heating oils to hang on. Tractor fuels and kerosene firm. Natural gasoline weak. Lubricants fairly steady. Wax off.

TANK-WAGON AND POSTED-DEALER: Minor scattered changes only.

FINANCIAL: In the week's irregular market the oils fluctuated widely. Standard of New Jersey scored a new low for the year. The average of 30 stocks used as an index recorded the same high it did in the preceding week, but closed lower. Average of 30 representative stocks for week ended April 13: High, 27.21; low, 26.21; close, 26.37. Week ended April 6: High, 27.21; low, 25.96; close, 26.93.

*Detailed information in market section.

OIL-COMPANY REPORTS

		Net income	Earned per share
Richfield Oil Corp.	1939	$2,601,926	$0.65
	1938	2,042,955	0.51
Imperial Oil, Ltd.	1939	19,250,071	0.71
	1938	25,959,580	0.96
Total 67 companies reporting†	1939	$221,908,057	
	1938	208,533,327	

†Including companies previously reported.

Petroleum Div. A.S.M.E. and Fluid-Metering Conference

(Continued from Page 26)

per entitled "Measurement of Individual Well Production."

In "Progress in the Use of Meters in Crude Pipe-Line Service," T. R. Aude, Stanolind Pipe Line Co., Tulsa, commented on results obtained by one company with 17 displacement meters. On newly constructed lines it has become a general practice to install orifice meters on discharge lines at pumping stations and displacement meters at the low-pressure ends of lines.

The meeting of Petroleum Division, American Society of Mechanical Engineers, was opened at the College of Engineering, University of Oklahoma, Norman, April 11, with an address of welcome by Dr. William Bennett Bizzell, president of the university. The program of the meeting overlapped that of the Petroleum Fluid-Metering Conference, sponsored by the society. This was followed by an address by Howard Coonley, chairman of the board, Walworth Co., entitled "Mechanics of Progress from a Static to a Dynamic Society," in which he discussed relations of private enterprise in a machine age confronted with new frontiers. He was followed by E. G. Bailey, vice president, Babcock & Wilcox Co., with a paper on "Distribution of Heat Energy, Its Measurement and Control." E. W. O'Brien, editor, Southern Power and Industry, spoke on "Southern Industry and the Future."

N. B. Chenault, Jr., British American Oil Producing Co., discussed "The Application and Use of Reda and Kobe Pumps in the Oklahoma City Field." The purpose was to survey results but not to compare the two methods. Max R. Wise, Bethlehem International Supply Co., spoke on "Maintenance of Gravity for Oil in Lease Storage." M. D. Green, Black, Sivalls & Bryson, presented a paper on "The Analytical Determination of Stresses in Cylindrical-Pressure Vessels."

E. O. Bennett, Continental Oil Co., and G. M. Stearns, presented data derived from field operations which was given in two informal talks on the subject of "The Economical Selection of Compressor Equipment for Gas Lift." K. P. Kammer, Public Service, Inc., New Orleans, spoke on "Operating Experience with 850 lb. per sq. in. 900° F. Extension at Market Street Generating Station." R. L. Huntington, director, school of chemical engineering, University of Oklahoma, discussed "Visual Studies of Flow of Air-Water Mixtures in Vertical Pipe." Bryon Short, professor of mechanical engineering, University of Texas, delivered a paper entitled "Performance and Design of Shell and Tube-Heat Exchangers."

The Utah Pipe Line appeared on the program as a double feature. W. G. Heltzel, Stanolind Pipe Line Co., presented a paper, "Construction of the Utah Pipe Line," in which he discussed significant phases of the unusual conditions encountered in building and operating this line across the Continental Divide. Following this, motion pictures in color were shown, which were taken during the construction of the line. While this remarkable film was being shown, a running description was given by J. Campbell Stirling, Stanolind Pipe Line Co., under whose direction the movie was made.

S. F. Shaw, consulting engineer, spoke on "Requirements of Equipment in Gas-Lift Operations." V. L. Meleev, research professor of mechanical engineering, Oklahoma A. & M. College, delivered a paper, "Compression Ignition Oil Engines in the Oil Industry." L. H. Cherry, University of Oklahoma staff, discussed "Development of pipe-line charts by dimensional analysis." Other papers of interest were:

"Weighing of Wells and Interpretation of Cards," F. C. Jones, Phillips Petroleum Co.; "Hydraulic Drives in Industrial Service," J. B. Jenkins, Twin Disc Clutch Co.; "The Application of Fluid-Level Measurement," Charles Rodd, Gulf Oil Corp.; "Problems Encountered in the Maintenance of the Combustion System of Air-Injection Diesel Engine," E. R. Spencer, Texas Empire Pipe Line Co.; "Thermodynamic Data on Hydrocarbons and Their Application," K. Lindley, Gulf Oil Corp.; "Special Design Problems Encountered in the Petroleum Industry," V. L. Doughtie and M. L. Begeman, University of Texas.

In the discussion which followed E. R. Spencer's paper, the opinion was expressed that because of its comprehensive treatment of combustion problems, this might be made the lead paper for a symposium on the subject.

W. L. NELSON IN CHARGE OF QUESTIONS ON TECHNOLOGY

W. L. NELSON

W. L. Nelson, professor of refinery engineering in the petroleum engineering school of the University of Tulsa and widely known technologist and author, has been placed in charge of Questions in Technology, a feature of The Oil and Gas Journal's editorial service for the past 14 years. He succeeds the late Dr. C. K. Francis, who started this department in 1926 and was its editor at the time of his death, March 25.

Under Mr. Nelson the page of questions and answers will appear twice monthly. Questions which have been partly or wholly answered previously or which are not of general interest to the industry will be answered by private correspondence. Special attention will be given to engineering problems. Otherwise the department will be conducted the same as formerly.

Mr. Nelson is particularly well qualified to answer the technological problems of the refining and allied phases of the oil industry's operations. He has been a member of the faculty of the University of Tulsa since 1930. He is a graduate of the University of Michigan and holds a master of science degree in chemical engineering from the same university.

He is the author of "Petroleum Refining Engineering," published by the McGraw-Hill Book Co. This authoritative work over the past 10 years has had one of the largest sales of any technical volume written for the petroleum industry. It is used as textbook in many petroleum engineering schools.

Through consulting work Mr. Nelson has been associated with many of the important developments in the design of petroleum-refinery equipment and the operation of plants.

Since November 1936 Mr. Nelson has been a member of the editorial staff of The Oil and Gas Journal, devoting most of his time to metallurgical developments, and he will continue in charge of this work. His first "Questions on Technology" will appear in the April 25 issue.

Oil Industry to Benefit, Kettering Tells T.N.E.C.

WASHINGTON, D. C.—New advances in technological and scientific developments in order to develop new industries and produce new commodities to take up the present slack in employment is the present need in the economy of this country, Dr. Charles F. Kettering, vice president of General Motors Corp., in charge of research, told the Temporary National Economic Committee today.

Dr. Kettering told the committee that in the field of automotive transportation, the fact that the next 10 years will show a rate of improvement greater than that of the past 10 years is established "as clearly as anything in the future can be established."

"Scores of research projects are now under way in the industries which make automobiles, trucks, buses, tractors, airplanes, and diesel locomotives," he explained. "This is also true in every one of the industries which make and supply materials for our industry, such as petroleum, rubber, steel and fabrics."

Geologists Critically Examine New Theories at Chicago

By W. V. HOWARD

CHICAGO, Apr. 13.—The outstanding development in present-day petroleum geology is the widespread realization that many of our cherished generalizations are in great need of revision and modification. A great part of the program of the Chicago meeting of the American Association of Petroleum Geologists, which was held from April 9 to 12, was devoted to a reexamination of evidence and the presentation of new evidence dealing with theories of origin, migration and accumulation of oil, and of the deposition of the sedimentary rocks which contain it.

Great interest was displayed in a paper by Dr. E. Berl, of the Carnegie Institute of Technology, on the role of carbohydrates in the formation of oil and bituminous coals. For many years geologists and chemists have speculated upon the source materials which eventually went to form oil. Theories have been advanced giving the credit to algae or other plants, to diatoms, to macroscopic animals, to fish or almost any other form of organic matter. Finally geologists have simply filed the whole matter in the background by saying that the source material was organic.

Oil can be formed experimentally from almost any kind of organic matter, but under conditions which obviously could not have existed in nature. Recently the question of the origin of oil has been revived because it is now of great economic importance to know how it is formed. With increasing interest in stratigraphic traps, it is of the greatest importance to know whether or not oil could form in the vicinity of these traps and the environment in which it formed. Dr. Berl's experiments show that carbohydrates can be converted easily into a "protoproduct" in an alkaline environment, which could be provided either by limestones or by ammonia formed during the decomposition of albumens. By further removal of oxygen, this material is further decomposed into a more asphaltic material.

The amount of carbohydrates which have been available is enormously greater than all of the oil that has been or will be found, and these materials have been available so long as there has been life upon the earth, so that it is necessary only to postulate an environment which would preserve this material long enough to permit burial. This recalls the earlier theories of Haseman who postulated the development of organic acids from the decomposition of plant and animal matter which was transported by streams to the sea and deposited at, or near, the mouths of rivers where the fresh water encountered salt water. This environment would, of course, form a stratigraphic trap upon further burial.

Max W. Ball, president, Abasand Oils, Ltd., elaborated the results reported by Dr. Berl into a theory outlining the further evolution of oil from the earlier formed "protoproduct" and asphalts through paraffins and finally into distillate and gas. This might take place under conditions of relatively low temperature operating over long periods of time. As Dr. Berl reported, the conversion of paraffins into naphthenes and aromatics is a very difficult one, but the reverse reaction can be carried out easily by hydrogenation. He has found that the protoproduct reacts with calcium sulfate to form calcium sulfide, which in turn hydrolyzes to form lime and hydrogen sulfide. Hydrogen sulfide gives up its hydrogen easily leaving sulfur, which may also react with the oil.

Abstracts of the papers presented at the meeting reported on these pages appeared in last week's issue of The Oil and Gas Journal in a special section devoted to the A.A.P.G. and affiliated organizations. Also, a biographical sketch of the newly elected president of the A.A.P.G., L. C. Snider, appeared in last week's issue, Page 40.

L. C. SNIDER
Newly elected president, A.A.P.G.

JOHN M. VETTER
Newly elected vice president, A.A.P.G.

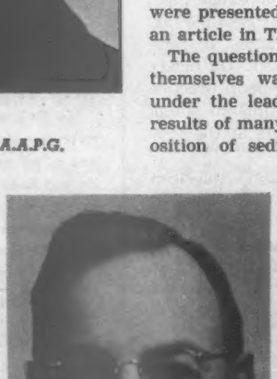
Much Evidence Provided

According to Mr. Ball, the tar sands of Athabaska provide much evidence along the lines of this theory. These sands contain an estimated 100,000,000,000 bbl. of oil which coats the sand grains and has a gravity of about 6° A.P.I. This oil is removed easily by the application of hot water and slight abrasion and is at the same time converted into an oil of 20° gravity. Had these sands been deeply buried and folded, Mr. Ball considers that this reaction would have taken place in nature.

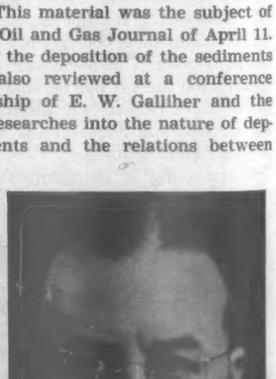
Dr. Berl presented his results in considerable detail at a group conference headed by Monroe G. Cheney at which Eugene McDermott presented evidence in favor of origin of oil from either decomposed plant material or from the basement rocks themselves.

At another conference, presided over by N. W. Bass, the results of four years' work on oil analyses were presented. This material was the subject of an article in The Oil and Gas Journal of April 11.

The question of the deposition of the sediments themselves was also reviewed at a conference under the leadership of E. W. Galliher and the results of many researches into the nature of deposition of sediments and the relations between



W. T. BORN
Newly elected president of the Society of Exploration Geophysicists, advancing from vice president



CAREY CRONEIS
Newly elected president of the Society of Economic Paleontologists and Mineralogists

Above: Gordon Gully, F. W. DeWolf, and E. E. Rosaire in a group discussion of a paper presented at the meeting

Left: Glen Ruby and Eugene McDermott, president of G.S.I., lunch between sessions of the meeting

Upper left: Bob Moore and Brick Elliott snapped while in an earnest discussion outside the meeting room

Left: Ted Link, Alexander Deussen, and E. E. Draper in a not-so-serious interlude between sessions

temperature, depth and turbidity of the water and the associated fauna were presented.

Prof. F. M. Van Tuyl led a conference on the migration and accumulation of oil at which many of those present discussed informally occurrences both on outcrop and in the subsurface which had a bearing on the subject.

A fifth conference, headed by L. C. Case, discussed oil-field waters. Thousands of water analyses have been made and tabulated according to the system proposed by Chase Palmer many years ago. These have been studied in great detail because of their bearing on water control in production, in addition to their correlative value. At this conference the importance of detailed study was emphasized, particularly as sometimes constituents present in a very minor amount were of greatest value in establishing the stratigraphic horizon containing the water.

At all of these conferences, there seemed to be a general feeling that the time had arrived when controversial questions should finally be resolved by detailed and painstaking reexamination and plans were laid for an extension of this work in the future. If it is continued along the lines laid down at these conferences, there seems little doubt but that the association's twenty-fifth year will be its most fruitful one.

During the evening of April 9, the question of geochemical prospecting, or soil analysis was reviewed by Dr. E. E. Rosaire, Eugene McDermott, and Dr. R. H. Fash. There was no doubt in the minds of the speakers regarding the practicability of soil analysis, even though each approached it from different theoretical angles. It must be emphasized, however, that the value of soil analysis does not depend upon the correctness of the theories regarding it, but upon its accuracy as checked by the drill. Where the theories are important is that they may provide a means for anticipating the limitations of this method of prospecting and avoiding the expense involved in its use where these limitations appear to be present.

Gas Escapes and Migrates Upward

Dr. Rosaire considers that gas escapes from the pool and migrates upward. He finds areas of high mineralization in the area of high concentrations of hydrocarbons which surround the pool in an irregular halo. In wells drilled over the center of the pool, he finds high concentrations of hydrogen well above the pay, which approach the pay horizon in edge wells and disappears in dry holes. In measuring hydrocarbon concentrations, he finds definite seasonal variations, the hydrocarbons being more oxidized during the summer. These variations lead him to suspect the rapid replenishment of the soil gases and the adaptibility of this method of prospecting even to glaciated areas and other areas of recent deposition. In discussing the mineralization of the rocks by rising gases and accompanying solutions, Dr. Rosaire pointed out that there was also a great amount of mineralization over the structures, but that the minerals deposited tended to be more soluble than those deposited in the haloes around the margins of the oil deposit.

In Mr. McDermott's presentation he stressed the importance of the polymerization of gases by catalytic agents in the soils. He also pointed out that although mineralization frequently accompanied the deposition of hydrocarbons, it did not invariably do so, and also that through the study of more stable hydrocarbons, the seasonal variation disappeared owing to a telescoping of this effect through the accumulation of deposits over a longer period. This period was not sufficiently long, however, to preclude the study of recently deposited sediments.

Dr. Fash discussed the manner in which the gases moved toward the surface. He did not consider that they moved upward in the form of bubbles but through a combination of capillarity and adsorption. If a sediment has the power of adsorbing gas, this will be done almost instantaneously as soon as gas comes into contact with it. Other gases reaching this surface will move along it toward the surface. Water does not interfere with this movement, as the gas rapidly saturates the water layer and moves upward as new gas enters from below. He considers the halo effect a function of the variations in the composition of the soil and not necessarily of the outline of the leaking oil deposit.

The discussion which followed the presentation of the theories of geochemistry as applied to prospecting for oil, brought out many facts of considerable practical value.

A. I. Levorsen and Monroe G. Cheney, chairman and vice chairman of the research committee, presided over an interesting discussion of new developments in geology and possible future developments. The necessity of considering the future of geology was emphasized by Mr. Levorsen in his introductory remarks in which he pointed out there were 2,433 students majoring in geology or taking graduate work in that subject in American universities. This group will graduate during the next 5 years to be replaced by probably an increasing number. Of the 509 graduating in 1939 from universities representing about three-quarters of the total registration, 244 went into the oil industry and the remaining 265 into other work or into the graduate schools of other universities. Mr. Levorsen considers that the trend of the microscopic study of samples is upward and that the most valuable asset in the possession of the companies today is the vast store of cuttings which can be studied in connection with exploratory work.

Paul E. Fitzgerald discussed in detail the prog-

(Continued on Page 36)

Natural Gasoline

Large Absorption Unit Now Presaturates Absorber Gas

In a great number of absorption units located in refineries and natural-gasoline plants it is desirable to include with the residue gas as much of the plant vent gases as is possible. For this purpose it has been customary to install compressors to boost these gases up to residue gas pressure. Especially is this true in pipeline gasoline plants.

Furthermore, where incoming gas to a plant contains a large amount of propane and butane, over and above that permissible in the finished gasoline, an excessively high temperature-rise is encountered in the main absorbers, due to the absorption of propane and butane. If the temperature rise, due to the absorption of these constituents, could be eliminated, it would be possible, in a number of plants, to reduce the oil rate. In a process known as "Presaturation," all the normal vent gases in the plant are contacted with all the oil passed over the main absorbers, at as high a pressure as it is practical to handle these vapors without the use of compressors. This pressure is sufficiently high to absorb substantially all the propane in these vent gases, as well as all the butane.

During the absorption process, the temperature of the oil passing through the unit will be raised. The oil from the unit is then cooled and pumped over the main absorbers. Assuming that all the propane has been absorbed by the oil, it is apparent that this presaturated oil passing through the main absorber, will not pick up additional propane from the incoming gas, for this oil entering the main absorber contains as much propane as is required to saturate it under main absorber conditions.

Therefore, the total incoming propane to the main absorber, instead of being absorbed when contacted by ordinary instead of presaturated absorption oil, passes out with the absorber residue gas. Any butane absorbed in the unit will counteract butane absorption in the main absorber, so that the net butane absorption in the main absorber consists only of the butane sold as a finished product.

The following data were obtained in operation of a high-pressure absorption plant:

The plant was operating at a pressure in excess of 700 lb. gage, and handling over 200,000,000 cu. ft. per day. The vent gases from this plant amounted to approximately 4,500,000 cu. ft. per day. Out of this vent gas, approximately 600,000 cu. ft. per day was used for boiler fuel, leaving a balance of 3,900,000 cu. ft. per day, to be recompressed into the high-pressure gas line, or blown to the air. Two 200-hp. compressors were being used at the plant to recompress all but 150,000 cu. ft. into the residue line. This remaining 150,000 cu. ft. per day was being blown to the air.

After adopting a program of presaturating the gas, the two 200-hp. recompressors were shut down, no gas was blown to the air and between 20,000 and 30,000 cu. ft. of gas from the main line were required, to make up sufficient volume for the boiler plant.

In the plant referred to above, the plant yield was increased slightly over 2 per cent, plus reduced operating cost.

Presaturation is a new and exclusive, patented process developed for the Fluor Corp., Ltd., Los Angeles, Calif.

N.G.A.A. Tentative Program For Annual Meeting

The tentative program for the nineteenth annual convention of the Natural Gasoline Association of America at the Hotel Tulsa, Tulsa, May 15 to 17, follows:

Morning Session—Wednesday, May 15

President's address—George P. Bunn, Phillips Petroleum Co.

"New Test Methods and Specifications for Liquefied Petroleum Gases," C. R. Williams, Continental Oil Co.; chairman of technical committee. (Presenting new tentative standards for these products and reviewing other activities of the technical committee.)

"The N.G.A.A. Standard Form of Casing-Head Gas Contract," James E. Allison, Hanlon-Buchanan, Inc.; chairman of the gas contract committee. (A report of committee studies of the 1939 revised contract form.)

Afternoon Session

Address: H. H. Anderson, vice president, Shell Oil Co., Inc.

"The Economics of Liquefied Petroleum Gases," James W. Vaiden, Skelly Oil Co. (What the manufacture of these "byproducts" of a natural-gasoline plant represents in terms of additional investment, operating cost and marketing expense.)

"The Value of Standardization to the Pacific Coast Natural-Gasoline Industry," W. W. Robinson, Jr., Texas Co. of California. (Mr. Robinson is chairman of the technical committee of the California Natural Gasoline Association and will review the work done by that group and is significance in California operations.)

Morning Session—Thursday, May 16

"Revised Charcoal Method for Testing Gas," H. L. Oder, Cities Service Oil Co.; chairman of the gas testing committee. (Presenting a modernized tentative version of this field method for determining the gasoline content of natural gas.)

"Neo-Hexane, the Fuel of Tomorrow," R. C. Alden, Phillips Petroleum Co. (The combination by alkylation of light paraffin hydrocarbons such as ethane, propane, and butane with olefins to produce neohexane, an isoparaffin, high-octane number, aviation fuel.)

"The Position of Natural Gasoline in Conservation," H. B. Bernard, M.E., consultant, Tulsa. (The value of natural-gasoline operations to the producer, the oil industry, and to the nation.)

Presentation of the Hanlon Award for outstanding service to the natural gasoline industry.

Afternoon Session

"Developments in Gas Recycling Plants," E. E. DeBach, Corpus Christi Corp. (A review of mechanical developments, including high-pressure absorption, in one of the most recent phases of natural-gasoline operations.)

"The Measurement of Gas Flow Under High Pressure," G. G. Brown, University of Michigan. (Presenting a method for simple calculation of the deviations from Boyle's law of high-pressure gaseous mixtures based on the application of theoretical data to actual field measurements.)

Morning Session—Friday, May 17

"Operating Kinks" Session.—Devoted to the presentation of original ideas submitted by field, plant, and laboratory men. Entirely aside from the fact that it is a prize contest, this session is most valuable to operating men because of the discussions and the ideas presented.

"Elimination of Hydrate Troubles," E. G. Hammerschmidt, Texoma National Gas Co. (Reviewing present successful methods for dehydration of gas and outlining the relative merits of various treating agents.)

Afternoon Session

"Operating Kinks" Session.—A continuation of the morning session.

Presentation of "Kinks" prizes.

Natural-Gasoline Output Increased in February

The daily average production of natural gasoline for February was 6,052,000 gal., according to a report prepared by the Bureau of Mines. This is 266,000 gal. above the average for January 1940, and 8 per cent more than the average for February 1939. The outstanding changes occurred in Seminole and Texas Gulf.

Stocks at refineries and plants and terminals increased 11,802,000 gal. in February, or from 187,992,000 to 199,794,000 gal. on Feb. 29.

NATURAL GASOLINE
(Thousands of gallons)

	Production			
	Feb. 1940	Jan. 1940	Jan.-Feb. 1940	Jan.-Feb. 1939
East Coast	.....	.....	.....	.....
Appalachian	8,106	9,066	17,172	14,281
Illinois, Michigan, Kentucky	1,998	2,260	4,258	2,540
Oklahoma	31,741	31,347	63,088	72,097
Oklahoma City	6,879	7,461	14,340	17,692
Osage County	4,122	3,685	7,807	7,901
Seminole	9,006	8,099	17,105	18,937
Rest of state	11,734	12,102	23,836	27,567
Kansas	5,619	6,037	11,656	10,341
Texas	64,970	63,655	128,625	103,876
Gulf	12,236	11,014	23,250	9,757
East Texas	13,090	13,249	26,339	27,331
Panhandle	21,410	22,289	43,699	38,264
North Texas	2,378	2,194	4,572	4,163
West Central	5,279	5,305	10,584	10,999
Rest of state	10,577	9,604	20,181	13,362
Louisiana	8,839	9,171	18,010	13,892
Arkansas	1,702	1,547	3,249	4,014
Rocky Mountain	6,491	6,776	13,267	13,198
California	46,052	49,523	95,575	102,223
Huntington Beach	2,531	2,672	5,203	5,898
Kettleman Hills	9,905	10,614	20,519	29,775
Long Beach	7,004	7,276	14,280	13,819
Santa Fe Springs	4,458	4,785	9,243	9,736
Ventura Avenue	5,157	5,430	10,587	9,907
Rest of state	16,997	18,746	35,743	33,088
Total	175,518	179,382	354,900	336,462
Daily average	6,052	5,786	5,915	5,703
Total (thousands of barrels)	4,179	4,271	8,450	8,011
Daily average	144	138	141	136

RECEIPTS AND DELIVERIES OF NATURAL GASOLINE BY DISTRICTS, FEBRUARY 1940
(Thousands of gallons)

	Deliveries				Receipts		
	To refineries	To refinery-owned bulk plants	To jobbers and retailers	Exports	At refineries	At refinery-owned bulk plants	By jobbers and retailers
East Coast	.....	.....	.....	.....	3,745	8	85
Appalachian	5,174	.....	2,060	335	7,024	.....	1,476
Ind., Ill., Ky., etc.	1,697	.....	231	.....	15,323	2,241	2,649
Oklahoma	22,394	867	1,693	157	15,751	32	1,126
Kans., Mo., etc.	3,211	.....	361	.....	12,236	681	831
Texas inland	45,138	3,198	3,381	90	45,105	855	2,324
Texas Gulf	18,869	8	355	1,140			
La. and Ark.	7,265	127	1,541	.....	5,013	127	1,139
Rocky Mountain	6,291	.....	169	.....	5,842	256	161
California	43,093	.....	919	1,638	43,093	.....	919
Total	153,132	4,200	10,710	3,360	153,132	4,200	10,710
Daily average	5,280	145	369	116	5,280	145	369
Total (thousands of barrels)	3,646	100	255	80	3,646	100	255
Average V.P.	21.8	12.7	16.0	19.6	21.8	12.7	16.0

Pipe-Line Activity

Electric Welding Contracts Awarded for 185 Miles

H. C. Price Co., of Bartlesville, Okla., has been awarded the contracts for electric welding, using the Fleetweld process, on the following pipe lines:

For Illinois Pipe Line Co., 40 miles of 10-in. from Martinsville, Ill., to Brownstown, Ill., general contractor Sheehan Pipe Line Construction Co.

For Tuscarora Pipe Line Co., 30 miles of 8-in. near Allentown, Pa., general contractor, Superior Construction Co.

For Buckeye Pipe Line Co., 55 miles of 10-in. from Cygnet, Ohio, to Lima, Ohio, general contractor, Sheehan Pipe Line Construction Co.

For Michigan Gas Transmission Co., 60 miles of 24-in. near Zionsville, Ind., general contractor, T. R. Jones.

Georgia Court Decision Clears Way for Road-Crossing Permits

DALLAS, Ga.—Superior Court Judge W. W. Mundy dissolved an injunction preventing the state Highway Board from acting upon a request for permission to run a gasoline pipe line beneath Georgia highways. His action sustained a recent opinion by Atty. Gen. Ellis Arnall that the road board was empowered to grant or deny the permission sought by the Southeastern Pipe Line Co. The attorney general's decision said that the board could grant the permits provided the line would not constitute a hazard to public health or safety. The projected gasoline pipe line will run from Port St. Joe, Fla., through Georgia to the Tennessee line near Chattanooga.

Judge Mundy granted a temporary restrainer against the board last month, upon the petition of 72 citizens and taxpayers who said authority to grant easements beneath state roads rested solely with the legislature. After dissolving this, he denied a request for supersedeas, which would have held in abeyance his denial pending appeal to the state Supreme Court.

Socony-Vacuum Co. Pipe Line May Be Built in New York

It is reported that Socony-Vacuum Oil Co. is considering plans for construction of a gasoline pipe line from the company's refinery at Buffalo to marketing areas in New York State.

Champlin Refining Co. Pipe Line Testing to Rock Rapids

Champlin Refining Co., after delays caused by winter weather, is now testing its new line from Superior, Neb., northeast to Rock Rapids, northwestern Iowa, preparatory to filling storage at the latter point, with a view to inaugurating actual deliveries to the trade late this month.

Gasoline Line Considered by Shell and Standard of N. J.

A pipe line which will transport gasoline and other refined products for a distance of 1,200 miles from Louisiana through southeastern states to Virginia tidewater is being contemplated as a joint enterprise of Standard Oil Co. (New Jersey) and Shell Oil Co., Inc.

Magnolia Completing Revamping Program in Gulf Coast Area

Magnolia Pipe Line Co. is completing work on the Gulf Coast of Texas which has been carried on in recent weeks. Williams Brothers Corp. has been laying 58 miles of loops in connection with a program for increasing the capacity of Eastgate, Aldine, Katy, and Sealy stations to the extent of 12,000 bbl. daily. Additional diesel-engine and reciprocating pump units as well as electric-driven centrifugal pumps have been installed along the line at these stations. O. C. Whitaker Co. and Stewart Construction Corp. have been reconditioning sections of line in the vicinity of Iola and Conroe stations. Each organization has had contracts for 27½ miles. This reconditioning work is being done on the original 8-in. line laid by Magnolia in 1912.

Refinery News

Magnolia Shuts Down Its Refinery at Luling, Tex.

Magnolia Petroleum Corp. shut down its refinery at Luling, Tex., on April 15. The plant has a capacity of 6,800 bbl. Changes in the company's operations following construction of the gasoline line from Corpus Christi to San Antonio make it possible to bring refined products from the Gulf Coast to the interior of Texas.

Vancouver Wants to Get Into Gasoline Business

VANCOUVER, B. C. — The city of Vancouver has opened negotiations with an unnamed oil company in the United States to supply it gasoline, to put it into the gasoline business in competition with British Columbia's seven oil-distributing companies, according to J. L. Telford, mayor. The company was stated to have offered to supply gasoline for 11.93 cents a gallon, including transportation, storage and exchange costs. The mayor said most motorists would willingly pay the city 2 cents a gallon more than the 25-cent price of most companies, thus giving the city a profit of 8 cents in addition to the 7-cent provincial tax. Oil companies already are in conflict with the province's Petroleum Control Board, whose attempt to force a 3-cent cut in wholesale gasoline prices and to fix the wholesale-retail spread at 5 and 6 cents is in the courts.

Hospah Dome Refinery Placed in Operation

The new refinery of Petroleum Products Refining Co., Hospah dome oil field, San Juan County, northwestern New Mexico, is operating at 1,000 bbl. per day. Cost of the refinery amounted to $100,000. Construction of a pipe line, storage tanks, and the drilling of additional wells are under consideration.

British American Sales

TORONTO, Ont.—The British American Oil Co., with refineries at Toronto, Montreal, and Calgary, reports an increase in sales for the first quarter of 1940 over the same period last year.

Photographic Salon for Institute Meeting

Plans for a Petroleum Industry Photographic Salon, sponsored by the Photographic Society of America, have been announced by the American Petroleum Institute as a feature of the Institute's twenty-first annual meeting at the Stevens Hotel, Chicago, November 11 to 15. The salon, to which photographers throughout the country have been invited to submit prints, will have as its subject, "The Petroleum Industry," and will be open to the public in the Antique Lounge of the Stevens Hotel from November 9 to 15.

The project represents a joint effort of the Institute's Committee on Public Relations and the Photographic Society of America. The petroleum industry was selected as the subject because of its importance to the present mechanized civilization, extent of its operations, and picturesque equipment.

Natural-Gas News

Panhandle Gas Hearing On Carbon-Black Use

AUSTIN, Tex.—Class of the gas output from 27 oil wells in the Panhandle, upon which depends permission for its use in carbon-black manufacture, was a subject of a Railroad Commission hearing last week.

Northern Natural Gas Co. complained of the use of the output of the wells for stripping in gasoline plants with the residue sold for carbon-black manufacture. Use of the gas for that purpose has been permitted because it is alleged there is no market for the sweet gas.

Business men from Pampa protested regulations which would prohibit use of the gas for carbon-black manufacture, fearing plants there would be forced to close.

Carbon-Black Industry Has Its Biggest Month

The carbon-black industry experienced the biggest month in its history in March, when sales to consumers exceeded production by approximately 15,000,000 lb. This reduction in producers' inventories, bringing stocks down to 105,000,000 lb., is believed to be the largest single reduction ever recorded.

Exceptional demand in March was due largely to announcement of a slight price advance for the current quarter, together with a well-maintained demand from consuming industries here and abroad.

Present industry stocks compare with inventories of 149,000,000 lb. at the end of March 1939, and 125,000,000 lb. at beginning of the year. First-quarter sales showed a gain of about 17 per cent over the same period a year ago, while reports from the industry indicate that second-quarter volume will be as good if not better than sales of the second 3 months in 1939.

While a normally good demand for the compounding material continues at present, April buying is expected to be less pressing, reflecting heavy March sales. Volume this month, nevertheless, may show an improvement over the same month last year, which was moderately slow.

Houston Domestic Rates Reduced by Agreement

HOUSTON, Tex.—An ordinance putting into effect the reduction in domestic gas rates agreed upon by city officials and gas distributing companies last month has been adopted by the city council. The reduction becomes effective on the first meter readings after April 20 and will result in a saving to residential gas users of about $250,000 yearly.

This is the first gas rate reduction since natural gas was piped into Houston for domestic consumption 13 years ago. Every residential consumer will receive a reduction ranging from 3.6 per cent to 21 per cent. Smaller consumers will receive the highest percentage of reduction.

The present rate is 65 cents per 1,000 cu. ft. plus a 50 cents per month service charge.

The new rate schedule eliminates the 50-cent service charge and substitutes a 60-cent monthly minimum bill which includes the use of 400 cu. ft. of gas. For the gas used in excess of the minimum, the rate is 65 cents per 1,000 for the next 5,600, 60 cents per 1,000 for the next 10,000 and 50 cents per 1,000 for all additional gas used.

The city also is negotiating with the gas companies for a commercial rate for smaller business firms. The commercial rate is now regulated by the city.

Progress in Oil Conservation Lauded at Columbus

(Continued from Page 23)

J. A. Fox, of Foley & Fox, Washington, Pa., drilling contractors, discussed the life of wire-line drilling cable and gas blowouts as major problems encountered in deep cable-tool drilling in the East. He credited lengthening the drilling stroke and reducing the weight of the drilling string as factors increasing cable life and he showed how by the use of salt water in the hole and through changes in the diameter, length and make-up of drilling-string blowout troubles are minimized. G. G. Hebard, Pure Oil Co., Newark, Ohio, suggested more consideration be given to tapered lines, expressing the belief that their use would double the safety factor.

From the motor fuel standpoint nature couldn't have done a poorer job of hydrocarbon formation than she did in the Michigan-Pennsylvania area, Dr. Gustav Egloff, Universal Oil Products Co., Chicago, said in his paper on crude oil and competitive fuels. He summarized the different processes by which refiners rearrange hydrocarbon formations to make high-octane fuels and discussed attempts of foreign countries to become self-sufficient by manufacturing substitute fuels. He predicted that the next 10 years would witness greater yields of better products with fewer, selected hydrocarbon molecules from crude petroleum.

R. E. Hammond, petroleum engineer, Carter Oil Co., St. Elmo, Ill., in his paper on electrification in basin fields pointed out that the success of electrified operation is enhanced by a thorough preliminary review of factors affecting the selection and installation of equipment making up the proposed system. Discussion by V. C. Smith of V. C. Smith Management Corp., Charleston, W. Va., brought out that proper time controls can reduce power costs and even generator pull, resulting in lower maintenance costs.

Michigan Operations

Drilling and discoveries in Michigan in 1939 were reviewed by George W. Myers, of Sun Oil Co., Toledo, Ohio, who predicted "new and important developments are just around the corner in the deep part of the Michigan basin. Recent geological discoveries lead to the belief that it is yet only scratched except in small areas where discoveries have led to intensive testing." H. M. McLure, president of the Michigan Oil and Gas Association, Alma, said Michigan's conservation law had brought new hope to operators there and pointed out that the state's refineries' crude-oil storage averaged only 8 days' supply, with some refiners having only 2 days' supply, to show that Michigan is not contributing to any excess crude storage.

The paper on "Geology and Development of the Illinois Basin Area," prepared by Dr. A. H. Bell, state Geological Survey, Urbana, Ill., was read by M. G. Gulley, Gulf Oil Corp., Pittsburgh, Pa. It stated that the Illinois basin and Eastern Interior basin are now regarded as the same, embracing an area east as well as west of the La Salle anticline with that anticline and the Rough Creek fault the major structures. It cited the production of 12,500,000 bbl. of Devonian oil in the state, 98 per cent in the past 4 months. Devonian production is from areas of structural closure and dry holes drilled through the Mississippian producing area indicate Devonian production is from a restricted area. The area of Devonian production in the Salem field was estimated at 5,000 acres. The decline in average initial production from 3,200 bbl. to 1,175 bbl. in 3 months was taken as an indication of rapid depletion.

Advantages to the oil industry of the adoption of the A.P.I. round thread, ¾ taper, 8 threads to the inch, casing were recited by G. F. Coons, National Tube Co., Pittsburgh. He spoke of the leakproof, joint-strength investigations that preceded the adoption and pointed out that equipment is being supplied that makes use of the old and new type casing interchangeably. C. S. Herrington, of Carter Oil Co., Mattoon, Ill., discussed welded casing in the Illinois basin where, he estimated, 1,400,000 ft. have been used. The shallow depths encountered make its use practical and it is accompanied by lower costs, he said.

Dewitt T. Ring, retiring chairman; J. J. Schmidt, East Ohio Gas Co., Cleveland, newly elected chairman; M. G. Gulley, Gulf Oil Corp., Pittsburgh, and W. A. Watkins, Carter Oil Co., Mattoon, presided at the four sessions, all held in the Deshler-Wallick Hotel. Mr. Ring presided at the annual dinner and entertainment in the hotel ballroom.

New Officers Elected

A complete list of the new officers follows:

J. J. Schmidt, chairman, East Ohio Gas Co., Cleveland, Ohio; M. G. Gulley, vice chairman, Gulf Oil Corp., Pittsburgh, Pa.; I. W. Hartman, vice chairman, Gordon Oil Co., Mount Pleasant, Mich.; T. H. Myers, vice chairman, Carnegie Natural Gas Co., Pittsburgh, Pa.; O. W. Van Petten, vice chairman, Columbian Carbon Co., Charleston, W. Va.; W. A. Watkins, vice chairman, Carter Oil Co., Mattoon, Ill.; W. E. Ferguson, secretary-treasurer, Ohio Fuel Gas Co., Columbus, Ohio.

NEXT WEEK

ANNUAL GULF COAST ISSUE

Including

- Drilling
- Production
- Transportation
- Refining
- Exploration
- Recycling

With a pictorial section illustrating latest engineering developments

Geologists Critically Examine New Theories at Chicago

(Continued from Page 33)

ress made in the chemical treatment of oil wells during the past few years, both in acidization of limestones as well as in water control by means of gels and other chemicals. The need of an increasing knowledge of chemistry on the part of geologists, as indicated by Mr. Fitggerald, was balanced by a plea that they learn more physics by C. V. Millikan (whose paper on petroleum engineering was read by Roger Denison in the absence of the author). After reviewing the progress of petroleum engineering during the past few years, Mr. Millikan's paper stressed the need of increasing cooperation between geologists and engineers. The same need of cooperation was emphasized by Dr. E. A. Eckhardt, who reviewed the progress of geophysics. It was Dr. Eckhardt's view that future progress in the field of geophysics would be along the lines of improved utilization rather than in the development of new methods. For greater efficiency, geological concepts must be frequently reviewed in the light of information provided by geophysics.

E. DeGoyler pointed out that the future of geology appeared to lie mainly in the field of interpreting facts which had been gathered for the geologists by specialists and that his own means of finding these facts were being lessened by the greater efficiency of geophysics and geochemistry. This trend required a broader geological training so as to permit the effective speculation that the future will demand.

Society of Geophysicists

The Society of Exploration Geophysicists held concurrent meetings at which many papers were presented on problems relating to geophysics, mainly in the field of better interpretation and greater accuracy. The Gulf gravimeter, as developed in that company's laboratories was introduced to the society by R. D. Wyckoff and W. G. Green, and R. E. Fearon discussed the principles of radioactive logging.

Over 1,600 members and guests registered for the meetings at which many papers were also presented dealing with local areas. Dr. L. C. Snider was unanimously elected president of the American Association of Petroleum Geologists. Dr. Snider, who is consultant for the Cities Service companies, also served as editor of the Bulletin from 1933 to 1936. John M. Vetter, Pan-American Production Co., Houston, was unanimously elected vice president of the association, while Ed W. Owen, San Antonio, and W. A. Ver Wiebe, University of Wichita, were reelected to the positions of secretary-treasurer and editor, respectively.

Officers elected by the Society of Exploration Geophysicists were: President, W. T. Born, Geophysical Research Corp., Tulsa; vice president, H. B. Peacock, Geophysical Service, Inc., Houston, Tex.; secretary-treasurer, A. Gilmour, Amerada Petroleum Corp., Tulsa; and editor, R. D. Wyckoff, Gulf Research & Development Co., Pittsburgh, Pa.

The following officers of the Society of Economic Paleontologists and Mineralogists had been previously elected and took office at this meeting: President, Dr. Carey Croneis, University of Chicago; vice president, John R. Sandidge, Magnolia Petroleum Corp., San Antonio, Tex.; and secretary-treasurer, H. B. Stenzel, Bureau of Economic Geology, Austin, Tex.

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Expropriation Dispute Believed Moving Towards Climax

Rapid-fire developments of the past week appear to be moving the Mexican oil question to a solution of some sort in the near future. The Mexican Government's formal reply to Secretary Hull's demand for settlement by arbitration was to have been handed Ambassador Daniels on Monday or Tuesday, but allowing for the usual diplomatic procedure of first transmitting the text to the addressed government before revealing its character, it probably will be Thursday or Friday before public release.

PROGRAMS AND MEETINGS

Central Regional Committee On Marketing to Meet

The central regional committee of the Division of Marketing, American Petroleum Institute, announces the following program for its first quartely meeting at 9:30 a.m., April 22, in the Red Lacquer Room, Palmer House, Chicago.

Morning Session

"Purpose and Objectives of Regional Committee Activity," by Eric V. Weber, vice president, American Petroleum Institute, and president, Ohio Petroleum Marketers Association.

"American Petroleum Institute, Lubrication Commitee's Program for 1940," by R. A. Ludlow, director, followed by discussion, limited to 30 minutes.

"An Analysis of Marketing Costs," by P. E. Lakin, vice president, Shell Oil Co., Inc., St. Louis, Mo., followed by discussion led by Paul Ryan, president, National Refining Co., Cleveland, Ohio.

Afternoon Session

"Antiknock Octane Requirements Today — Tomorrow," by R. C. Alden, Phillips Petroleum Co., Bartlesville, Okla., followed by discussion.

"Diesel Fuels and Lubricants," by L. C. Welch, assistant general manager lubricating and sales technical service departments, Standard Oil Co. of Indiana, Chicago, followed by discussion.

An executive session of central regional committee will follow. Frank E. Spencer, Spencer Petroleum Co., Chicago, representing burning oil distributors' viewpoint, and A. G. Talbot, Petroleum Exchange Corp., Chicago, representing carload marketers' viewpoint, have been added to the committee.

Natural Resources Round Table Conference Date

Relationships between business and government and between the federal Government and the states will come before the twenty-eighth annual meeting of the Chamber of Commerce of the United States, in Washington, D. C., April 29 to May 2. A statement by the chamber said:

"In no field of business endeavor is there greater need for clarification of the relationships between government and business and between the federal Government and the states than in the natural resources field. These relationships will be developed and discussed by a special natural resources round table."

George A. Hill, Jr., president of Houston Oil Co., Houston, Tex., will address the round table on "State Regulation." Mr. Hill will tell what the states have done and can do.

"James F. Owens, president, Oklahoma Gas & Electric Co., Oklahoma City, chairman of the chamber's Natural Resources Department Committee, will preside at the round-table session."

Executive and Technologist Discussed by Chemists

At a meeting of the Society of Chemical Industry in New York, William B. Bell, president of the American Cyanamid Co., and Dr. E. C. Williams, director of research and vice president of Shell Development Co. talked on "The Executive and the Technologist."

Modern industry looks for its future development not to the expansion of land frontiers or new sources of raw materials, but to the creation through research of new products from existing materials. It is well to consider not only in whose hands such potentialities for change lie and how competent those hands are to control them, but to what extent there is unity of outlook between them and the business executives.

While there is a trend toward bringing technical men into leading executive positions, there will be an interim during which the more traditional type of executive and the research leader will have to make special effort to get together mentally. It would be too conservative to think that executives think only of money and that technical men are theoretical and impractical. The successful executive devotes much attention to understanding the basic processes of his industry and the research leader usually appreciates the problems and difficulties of executive control.

There are, however, plenty of possibilities for misunderstanding arising from the different backgrounds of the executive and research type and the way they work. In many cases the expression of a belief by a sufficiently important executive tends to make that belief a fact. On the other hand, the beliefs of a scientist do not at any time have the slightest influence on the facts. This tends to breed scepticism in the scientist's mind for accepted beliefs as such and leads to misinterpretation by the executive that the scientist is reluctant to pull along like a decent fellow.

I.P.A.A. Membership Committee Appointed by President

Appointment of the membership committee of the Independent Petroleum Association of America has been made by Pres. Frank Buttram with A. H. Ledbeter, McClanahan Oil Co., Mount Pleasant, Mich., as chairman and P. W. Pitzer, Pitzer & West, Breckenridge, Tex., vice chairman.

The committee, representative of all major oil-producing districts of the United States, follows: W. J. Schultz, president, Crescent Petroleum Co., Bakersfield, Calif.; A. R. Thompson, vice president, Independent Oil Producers Association of Illinois, Mattoon, Ill.; John Braden, Braden-McClure Oil Co., Hutchinson, Kans.; W. F. Hopper, Hutchinson, Kans.; Guy T. Berry, Big Brother Oil Co., Independence, Kans.; H. E. Zoller, vice president, Derby Oil Co., Wichita, Kans.; W. E. Hupp, Lexington, Ky.; Charles R. Noble, Lake Charles, La.; Martin Yates, Jr., Flynn, Welch & Yates, Inc., Artesia, N. M.; William Harrington, president, Henderson Oil Co., Marietta, Ohio; Tide Cox, Rochland Oil Co., Ardmore, Okla.; J. B. Milam, Phillips & Milam, Chelsea, Okla.; R. Olsen, president, R. Olsen Oil Co., Oklahoma City; J. F. McManmon, Tulsa; Ralph T. Zook, president, Sloan & Zook Co., Bradford, Pa.; R. F. Schermerhorn, Schermerhorn Oil Corp., Big Spring, Tex.; H. S. Moss, H. S. Moss Petroleum Co., Dallas, Tex.; Harlan Ray, Ray Oil Co., Dallas, Tex.; Ward B. Powell, Combined Oil Co., Fort Worth, Tex.; A. H. Rowan, president, Rowan & Nichols Oil Co., Fort Worth, Tex.; W. L. Goldston, Houston, Tex.; Ralph A. Johnston, Johnston & Johnston, Houston, Tex.; Edwin G. Bedford, Midland, Tex.; E. J. Dunigan, Jr., Mordyan Petroleum Co., Pampa, Tex.; Bryan W. Payne, Iowa-Payne Oil Co., Tyler, Tex.

Permian Basin Association Meeting Dates Changed

The Permian Basin Association convention at Odessa, Tex., will be held on June 21 and 22, instead of June 14 and 15, as originally planned. It is planned to have a general rally of safety workers of the area attend.

CALENDAR OF EVENTS

April

NATIONAL PETROLEUM ASSOCIATION, semi-annual meeting, Cleveland Hotel, Cleveland, Ohio, April 18-19.

PENNSYLVANIA STATE COLLEGE, ninth Petroleum and Natural Gas Conference, State College, Pa., April 26-27.

May

PETROLEUM INDUSTRY ELECTRICAL ASSOCIATION, Dallas, Tex., May 1-3.

NATURAL GAS SECTION, AMERICAN GAS ASSOCIATION, thirty-fifth annual meeting, Houston, Tex., Rice Hotel, May 6-10.

AMERICAN INSTITUTE OF CHEMICAL ENGINEERS, thirty-second semiannual meeting, Statler Hotel, Buffalo, N. Y., May 13-15.

NATURAL GASOLINE ASSOCIATION OF AMERICA, annual convention, Hotel Tulsa, Tulsa, May 15-17.

INTERNATIONAL PETROLEUM EXPOSITION, Tulsa, May 18-25.

AMERICAN PETROLEUM INSTITUTE, midyear meeting, Fort Worth, Tex., May 27-31.

NATIONAL OIL SCOUTS AND LAND MEN'S ASSOCIATION, annual convention, Hot Springs, Ark., May 30-June 1.

June

ILLINOIS-INDIANA PETROLEUM CONFERENCE, eighth annual meeting, Robinson, Ill., June 1.

SOCIETY OF AUTOMOTIVE ENGINEERS, summer meeting, The Greenbrier, White Sulphur Springs, W. Va., June 9-14.

SOUTHWEST PETROLEUM CREDIT GROUP, San Antonio, Tex., June 17-20.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, Milwaukee, Wis., June 17-20.

AMERICAN SOCIETY FOR TESTING MATERIALS, Chalfonte-Haddon Hall, Atlantic City, N. J., June 24-28.

September

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, Spokane, Wash., September 3-5.

AMERICAN CHEMICAL SOCIETY, Detroit, Mich., September 9-13.

NATIONAL PETROLEUM ASSOCIATION, thirty-eighth annual meeting, Hotel Traymore, Atlantic City, N. J., September 18-20.

October

NATIONAL SAFETY CONGRESS, Stevens Hotel, Chicago, October 7-11.

INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA, eleventh annual meeting, Dallas, Tex., October 16-18.

TEXAS MID-CONTINENT OIL AND GAS ASSOCIATION, annual convention, celebrating Texas oil's forty-fifth birthday, Fort Worth, Tex., October 31-November 2.

November

AMERICAN PETROLEUM INSTITUTE, twenty-first annual meeting, Stevens Hotel, Chicago, November 11-15.

Service on Active Fields

ROGERS & ROGERS FIELD, MONTAGUE COUNTY, TEXAS

Compiled by The Oil and Gas Journal

Approved name

Rogers & Rogers.

Geographic location

The field is located in the north-central part of Montague County, North Texas, a few miles south of the Red River, which is the boundary between Oklahoma and Texas.

Principal cities and towns

A portion of the field is in the townsite of Nocona, a city of about 3,500 population. Henrietta lies 28 miles to the west and Wichita Falls, with a population of about 50,000, lies still farther west and slightly north. Gainesville is about 35 miles to the east and Fort Worth about 90 miles to the south. Montague, county seat, is 9 miles south of the field.

Highways and roads

U. S. High No. 82 passes through the field and is a paved, all-weather road. Since a portion of the field is within the townsite and the remainder within a short distance, roads in the field are exceptionally good.

Railroads serving the area

The main line of the Missouri-Kansas-Texas Railroad passes through Whitesboro, east of Gainesville, where it joins a branch line that runs through Nocona to Wichita Falls and western Oklahoma.

Cities and towns where supply companies have branches

One supply company has a store in the town of Muenster some 22 miles east of the field; however, most stores serving the field are in Wichita Falls, long a North Texas oil-field supply center.

Trucking companies

One trucking company is located in Gainesville and one in Nocona, but the bulk of the field's supplies are hauled by Wichita Falls and Fort Worth companies.

Hotels and accommodations

Limited hotel accommodations are available in Nocona and Henrietta, with Wichita Falls being the nearest town with more adequate housing facilities.

Schools and churches

Nocona has several churches and a modern public-school system.

Electric power and gas companies

The area is supplied with electric power by Texas Power & Light Co., while Lone Star Gas Co. supplies most of the towns in the area. High lines pass through the field.

DEVELOPMENT

Development to date

Rogers & Rogers' No. 1 J. E. A. Burnett, in the J. Lenow Survey, 1 mile west of Nocona, came in February 10, 1939, for 523 bbl. daily from the Strawn sand drilled from 4,639 to 4,748 ft. to open the field. Offsets were immediately staked and started. After several months of drilling, during which some seven additional wells were completed as good producers, Youngblood & Foree's No. 1 Davis, a ¼-mile-northeast outpost, was completed for 150 bbl. daily from the upper Strawn sand from 4,310 to 4,338 ft. to open a slightly shallower pay level. Several more wells were drilled to both of the horizons during the following 3 months, and in December the lowest horizon known at present, the Bend lime, was discovered by Stanolind Oil & Gas Co.'s No. 2 Davis, Block 59, W. J. Wells Survey. The well rated the highest potential of any of the pay levels, making 1,920 bbl. daily from the lime drilled from 5,224 to 5,249 ft. At the start of 1940 most operators in the field considered the Bend lime at 5,200 ft. as generally the most prolific of the three horizons.

Future development

The field now has a proven area of about 640 acres so complete development will require at least some 40 wells to be drilled. However, since the field is expected to extend to the northwest it is probable many more wells will be drilled. The wildcat being drilled by W. T. Payne on the T. M. Baker lands, 1 mile west of the field, will do much to determine the extent of production in that direction. Ramsey's No. 1 J. K. Loving, about four locations south of the field, will likewise tend to establish the field's production possibilities on that side.

At last reports the Payne wildcat was preparing to run a drill-stem test in the 5,200-ft. horizon. The Ramsey possible extensioner at last reports was drilling below 5,400 ft., apparently having missed the Bend pay. Most of the field's development in the immediately past few months has been projected to the Bend lime and indications are it will receive the most of the work in the coming months.

Completions to date

On April 14 there were 17 producers in the field. Ownership and pay level of the producers follows:

Operator—	4,300 ft.	4,600 ft.	5,200 ft.	Total wells
Rogers & Rogers	2	3	1	6
Stanolind Oil & Gas Co.	2	1	2	5
Sunray Oil Co.	..	1	1	2
Anderson-Prichard, Inc.	..	1	..	1
Payne & Youngblood	1	..	..	1
Youngblood & Foree	..	1	..	1
Lesh & McCall	..	1	..	1
Total	5	8	8	17

Number of operations

As of April 1 there were seven wells drilling or being completed and seven tests were rigging up or standing as locations.

Lease ownership

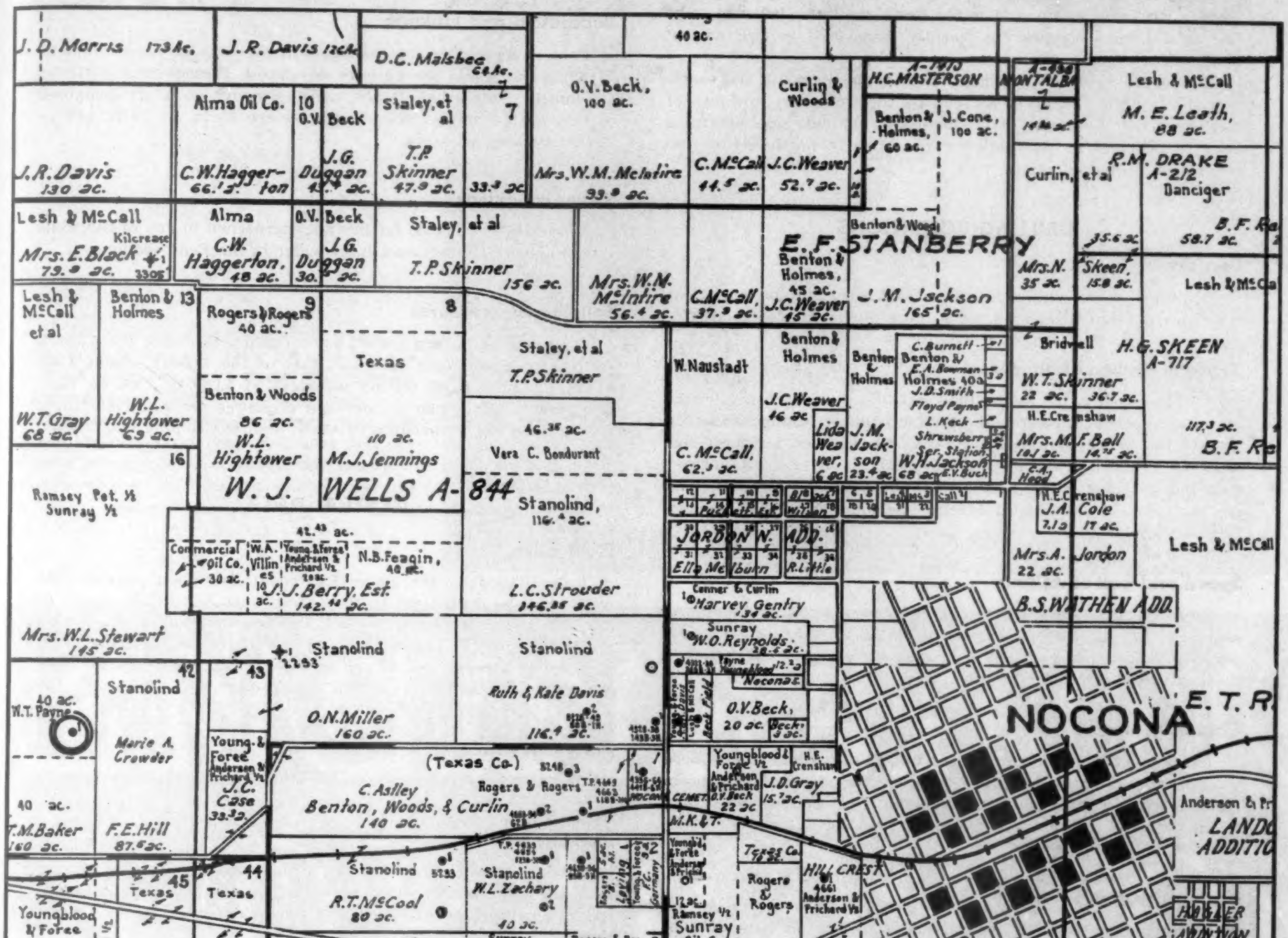
In addition to the listed companies the following operators own acreage in or near the field: O. V. Beck, Commercial Oil Co., W. Bland Omohundro, Texas Co., Conner & Curlin, and several others having small tracts near the townsite.

GENERAL GEOLOGY

The Rogers & Rogers field is located at the north rim of the Fort Worth geosyncline and is south of the Red River uplift. It is southwest of the Muenster arch and northeast of the Bend arch. Little of the regional geology of the deeper strata throughout the county is entirely agreed upon by geologists; the conditions responsible for the accumulation of oil in the field are complex and somewhat dependent upon the four major structural features mentioned. Some believe the Fort Worth syncline does not extend more than a quarter of the way up into the southern part of the county and for this reason believe the field's structure is directly and solely resultant of the Muenster arch and the Red River uplift. At any rate, most of the geologists are agreed the field's structure

is a local one resulting from any one or all of the general regional disturbances.

According to yet-inconclusive structure-contour maps being kept by interested companies, the field is producing from an anticline plunging somewhat to the south. As evidenced by the increased potentials of wells drilled to deeper strata since the field discovery,



Rogers & Rogers field, Montague County, Texas

Heydrick Map Co., Wichita Falls

it is believed that, characteristic of most of the North Texas oil fields, the structural conditions intensify with depth. Four separate oil-producing zones have been opened in the field, three being from the Strawn sands and one from the Bend, the latter believed to be the basal Bend conglomerate recently discovered in two wildcat field openers in the county.

Most of the field's development has been on the south and southeast sides of the structure. As seen by the somewhat low tops of markers and the defining of production on the east side, operators believe the crest of the anticline lies slightly northwest of the present limit of production.

DRILLING CONDITIONS

Derricks

Drilling is done with either 94-ft. or 122-ft., 24-ft.-base derricks with only substructures used being those of the wooden type.

Types of drilling equipment

All rigs used so far in the field have been of mechanical type, powered by diesel, gasoline, and butane engines. Minimum-size rig used in the field is powered by two 175-hp. engines, but most rigs use two 210-250-hp. engines. Most operators have both engines mounted on substructures level with the derrick floor, with one driving the mud pump and the other the rotary, and the two compounded for hoisting.

Speed and cost of drilling

From 25 to 35 days are required for completing wells in the tank. Present contract prices vary from $3.50 to $4 per foot, depending on whether payment is in cash or oil and what materials the contractor is required to furnish.

Character of mud

Usual practice is to carry a mud weight of 9.5 to 10.5 lb. These weights of mud have been found satisfactory to overcome problems of heaving shale and sand grabbing. Most of the hole drilled is shale or sandy shale, but by controlling the mud weight little difficulty is encountered.

Casing program

Usual practice is to set a minimum of 600 ft. of either 9⅝-in. or 10¾-in surface pipe; then either 5½ or 7-in. oil string.

Type of bits used

Most of the drilling below the surface pipe is done with rock bits, usually requiring from 15 to 20 bits per hole. Drag bits are used by some of the operators for drilling a portion of the hole due to the large amount of shale.

Completion methods

In the 4,300-ft. producers, all were completed by setting the oil string through the pay and gun-perforating. In the 4,600-ft. producers the oil string was cemented on top of the pay and then drilled in, or set through and perforated. No general rule has been adopted as to how the wells should be completed, the method of completion being largely dependent upon what is found when the pay is topped. In general, better wells in the 4,600-ft. pay have been completed by setting through the pay and perforating, there being a shale section dividing the pay sand.

Shooting and acidizing

Only one well has been acidized, the first completed in the Bend pay, and none has been shot. The well acidized had about 5 ft. of conglomerate and above that a porous saturated lime. It has been the only one to find the upper lime present, and was treated with 1,000 gal. of acid.

PRODUCING PRACTICES

Method of producing oil

All wells but one are flowing their allowable. The one pumping well encountered a rather thin section of saturation on the edge of the field.

Separators and tankage

Central separators and tankage will probably be used completely when the leases are entirely developed. Present tank batteries are mostly made up of 500-bbl. tanks, although some are composed of two 250-bbl. tanks. Most separators are 30 in. by 10 ft. and of 125-lb. working pressure.

Water conditions

Bottom-hole water so far has not encroached in any of the wells except one, which carried 2 ft. of water in the Bend section.

Bottom-hole pressures

Drill-stem tests have shown bottom-hole pressure of the 4,300-ft. section to approximate 1,850 lb.; that of the 4,600-ft., about 2,000 lb.; and in the Bend section pressures of 1,950 to 2,550 lb. have been found. While the bottom-hole pressures are relatively high, only a little gas is encountered other than gas coming out of solution.

GENERAL DATA

Field rules

Rules issued by the Texas Railroad Commission provide that wells shall be drilled 466 ft. from lease lines and 933 ft. apart, or one well in the center of 20 acres. Proration units of 20-acre tracts are used, with the allowable being distributed on the basis of 50 per cent to acreage and 50 per cent per well. A gas-oil ratio limit of 2,000 cu. ft. per barrel of oil is provided.

Daily allowable

On April 1 the field had an allowable of 1,428 bbl. of oil daily.

Pipe-line outlet

Sinclair Prairie Pipe Line Co., which has a trunk line passing near the field, has provided an outlet for the oil. It is possible a second line may be extended into the field from a nearby trunk line.

Properties of crude

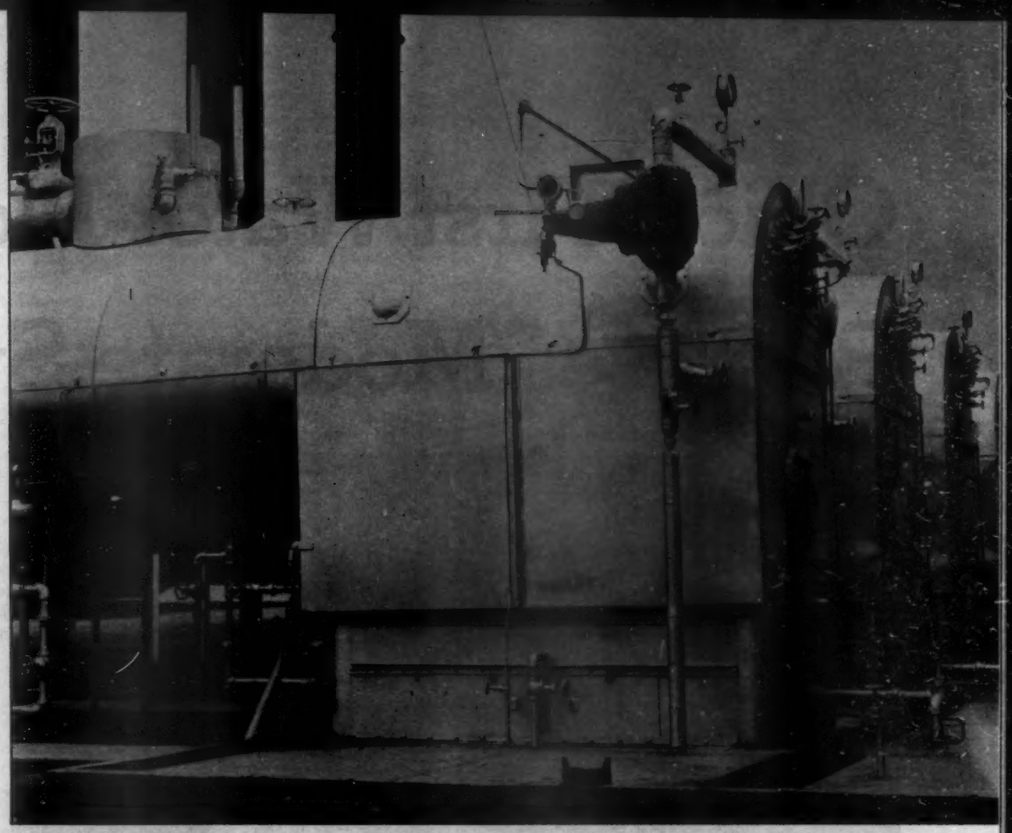
An analysis run on crude from a 4,600-ft. producer yielded the following data:

Gravity, °A.P.I.	43.1
Vapor pressure (Reid) at 100° F.	8.5
Pour point (A.S.T.M.), °F.	10
Flash, °F.	Below 35
Fire, °F.	Below 35
Carbon residue, per cent	.93
Sulfur (A.S.T.M.), per cent	.16
Viscosity (Saybolt Universal) at 100° F.	36.2
Viscosity (Saybolt Universal) at 130° F.	34.4
Base	Intermediate

HEMPEL DISTILLATION

First drop over (°F.)	89
5 per cent	125
10 per cent	180
15 per cent	209
20 per cent	239
25 per cent	276
30 per cent	313
35 per cent	357
40 per cent	401
45 per cent	444
50 per cent	486
55 per cent	531
60 per cent	573
65 per cent	601
Per cent over at 392°	39.0
Per cent over at 527°	54.7
Residue, per cent	33.0
Loss, per cent	1.67

Gasoline and naphtha, 39 per cent of 63° A.P.I. gravity.



Steam for the operation of recycling plants is obtained from the regular oil-field type boiler but special care is taken during installation of the steam plant to insure safe and economical operation with a minimum of attention from the plant operator. Steel jackets lined with insulation, insulated steam lines, steel base with firebrick lining, automatic pressure control, automatic water-level regulator, and safety alarm, and concrete and steel walks are included

ENGINEERING & OPERATION

APRIL 18, 1940

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After more than 9 months' operation an evaluation of the first water flood in Ohio indicates that this process is adaptable to the new locality although the practice as developed in Pennsylvania will have to be changed to meet the new conditions.

ELECTRIFICATION OF PUMPING EQUIPMENT IN ILLINOIS
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AERIAL PHOTOGRAPHS FURNISH VALUABLE AID TO GEOLOGISTS
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MIXTURE OF KETONES USED TO DEWAX MOTOR LUBRICANTS
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DEEP CABLE-TOOL DRILLING IN THE APPALACHIAN DISTRICT
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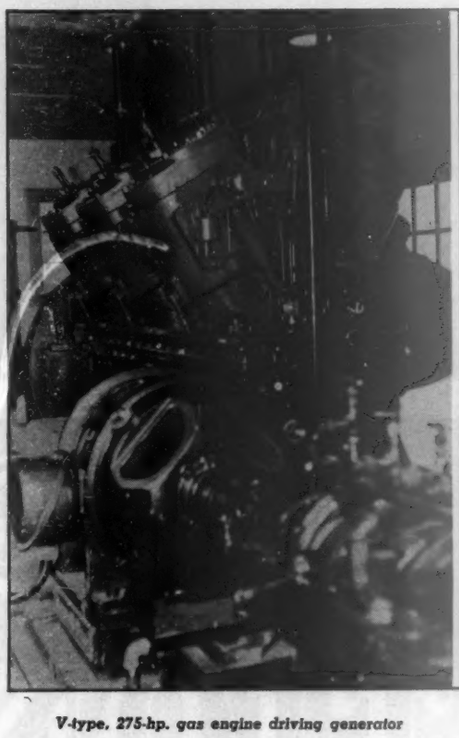
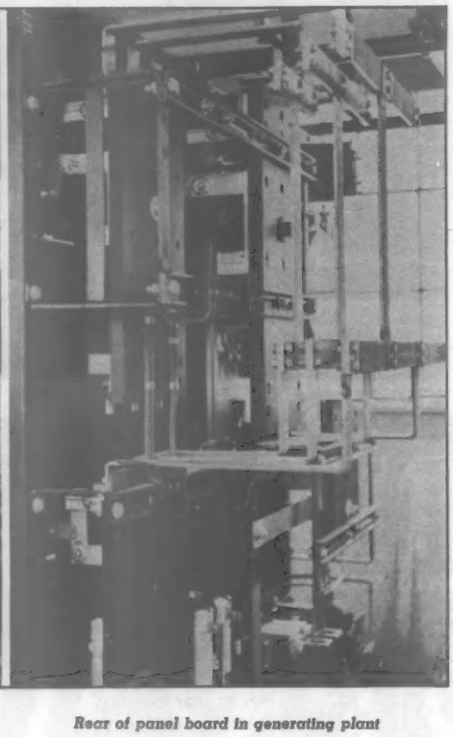
Ohio's First Water-Flood Project Promises Moderate Success

By J. P. O'DONNELL



V-type, 275-hp. gas engine driving generator



Rear of panel board in generating plant

OHIO'S first water-flood development was 9 months old on March 31, 1940, just 1 year after Gov. John W. Bricker signed a bill legalizing the practice. This development is being carried on in the Berea sand, Chatham pool, of Medina County, by the Dymo Oil Corp., of Olean, N. Y., whose companion company, the Messer Oil Corp., is one of the largest water-flood operators in the Bradford and Allegany fields. Indications based on experience to date are that the Ohio development will be moderately successful from an economic standpoint despite the great difference in conditions from those found in the Bradford-Allegany area.

Agitation for the legalization of water flooding in Ohio had been under way for several years but did not receive any great impetus until after the practice had been legalized in Kentucky. Late in 1938 and early in 1939 a series of conferences was held by interested producers and state officials and a bill, subject to approval of producers, was drafted. When that approval was obtained, the bill was introduced into the house, where it was passed 106 to 7, and then into the senate, where it was passed unanimously. It was signed by Governor Bricker on March 31, 1939, and, in compliance with requirements, became effective 90 days later.

During later 1938 and early 1939 the interests which later formed the Dymo Oil Corp. cored the sand in a number of Ohio fields before finding conditions which they deemed sufficiently suitable for an experimental flooding program. The original core taken by them of the Berea sand in the Chatham pool had an average permeability of 87 millidarcys, ranging from 0 to 232 millidarcys, an average porosity of 17 and an average saturation of 40 per cent.

The porosity of the Berea sand, as shown by this core, is slightly higher than the average Bradford sand, which is usually 14 to 15 per cent, and the saturation percentage is comparable. However, the permeability is vastly different, the average of the first Chatham core being 17 times that of the average Bradford permeability, which normally ranges from 4 to 6 millidarcys.

The Berea as found at Chatham is a medium to fine-grained, moderately hard, slightly argillaceous, often limy and light to bluish-gray sandstone. In composition the Berea contains 5 to 8 per cent more silica than the Bradford sand, while the latter has correspondingly more alumina, ferric oxide and magnesia. The Berea is regarded as the "cleaner" sand.

Most attractive feature of the Berea from a water-flooding standpoint is that as a rule it is virtually unbroken in contrast to the thin-bedded sections of the Bradford sand through occasional partings of black, blue or red shales from 1 to 10 in. thick have been encountered. Offsetting this advantage, however, are the extremely wide variations in sand thicknesses and the substantial quantities of salt water found in lower sections of the Berea. An indication of the thickness variations is shown in the summary of net sand found in the 13 wells drilled in the original flood. The relative location of these wells is shown in Fig. 1. The well number is shown below and sand thickness above symbol.

A striking indication of the variability of sand thicknesses was encountered in the original flood. An old producing well, No. 21, located 30 ft. southeast of the No. A-11 oil well shown in Fig. 1 was reported to have found 196 ft. of sand, while that found in A-11 was only 151 ft.

Edward Orton, state geologist, in his "Geological Survey of Ohio," Volume 6, published in 1888, noted the unevenness of the bottom of the Berea. "Its line of junction with the underlying shale is very uneven and irregular, owing to erosion sustained by the formation immediately preceding the deposition of the sandstone. Channels and holes were worn in the shale into which dropped the sand of which the Berea grit is composed. The sandstone sometimes descends 40 or 50 ft. in these channels in less than 200 ft. This irregularity extends, however, only to the bottom of the stratum. The upper surface is approximately even and regular."

It is believed that Orton included the Berea cap, a hard, sandy formation that is regular on top but which is often markedly irregular on the bottom, in his description. This irregularity is apparent from the accompanying table showing the elevation of the top of the sand in the different wells. There is a difference of 30.7 ft. in the top of the sand in wells No. A-11 and No. O-12 and these wells are only 233 ft. apart. The average top of sand elevation in the first flood wells is 654.8 ft., with the extremes 16.7 ft. above and 14.0 ft. below the average.

TABLE 1—DATA ON SAND THICKNESS

Well number	Surface elevation	Top of sand	Top of sand elevation	Net sand thickness
O-3	1,058.8	417	641.8	32
O-4	1,055.4	393	662.4	108
O-5	1,046.7	392	654.7	164
O-11	1,070.0	420	650.0	117
O-12	1,052.5	381	671.5	201
O-13	1,039.1	379	660.1	178
O-19	1,060.9	420	640.9	100
O-20	1,049.5	383	666.5	173
O-21	1,051.6	404	647.6	65
A-3	1,055.4	407	648.4	60
A-4	1,050.0	383	667.0	147
A-10	1,059.7	399	660.7	154
A-11	1,043.8	403	640.8	151
Average	1,053.3	398.5	654.8	127

Wells in the first flood were drilled through the sand and the salt-water problem developed when the lower sections were reached. In the second flood, drilling on which was completed in February, the wells were drilled only 75 to 80 ft. in the sand with the bottom of the hole above the heavy water-bearing sections.

The most undesirable feature of water flooding in the area is the low price of the oil, which is $1 per barrel in contrast to the current $2.75 price of Bradford crude. The crude is classed as "Lodi" and carries approximately the same price as Lima crude which is produced farther west in Ohio. The gravity of this oil is 39.2° and the highest sulfur content found by analysis was 0.12 per cent. It has a mixed paraffin-asphalt base. It is gathered by the Cleveland division of the Buckeye Pipe Line Co.

As soon as Governor Bricker signed the law legalizing flooding, the Dymo Oil Corp. began drilling the wells in the experimental 10-acre five-spot flood. The 13 wells had been drilled and equipped when the law became effective 90 days after it was signed and on that date water was turned into the intake wells. At first the water was in-

jected under hydrostatic head alone, but was subsequently increased by amounts of 25 lb. per sq. in. every 3 or 4 weeks until a well-head pressure of 375 lb. per sq. in. was reached. With the top of the sand in the original flood ranging from 380 to 420 ft., this resulted in sand-face pressures of from 540 to 555 lb. per sq. in.

The volume of water injected in wells in the original flood ranged from seven-tenths of a barrels to 2 bbl. per ft. of sand per day, further indication of the wide permeability variations. The total amount of water injected in the original flood from June 29, 1939, to March 29, 1940, is slightly less than 550,000 bbl. Water for flooding is obtained from an alluvial deposit. Analysis showed this water to be of sufficiently good quality that treatment was not required and it is, therefore, pumped through a closed system directly to the intake wells.

Production from the 10-acre area before water injection began averaged 8 bbl. per day. In the meantime, an additional 5 acres have been developed by the drilling of three more intake wells and two more producing wells. The extent of the original development is now 15 acres, with 6 producing wells and 12 injection wells.

The production from the 15-acre development at present is 225 bbl. per day. Total recovery from this development to date is 37,000 bbl., an average of 2,467 bbl. per acre. The rate of production advance has been comparable to that experienced on properties developed in the Bradford area. There has been no indication that a production peak has been passed so that it is impossible to estimate what the ultimate recovery will be.

The well spacing is similar to that commonly used in the Bradford field and at the same time is designed so that the ultimate development will conform to the property lines. Water-well spacing is 338 ft. by 325 ft. and the water-well - to - oil-well spacing is 233 ft. All wells are being shot, 1 qt. of glycerin to 1 ft. of sand. Two-and-one-half-inch shells are used. Results have been entirely satisfactory and no particular cleaning-out troubles have been encountered.

The wells are drilled with light water-well outfits and spudding machines operating under their own power. The time required from setting up to completion averages 1 week. Both the water wells and producing wells are equipped similarly to those in the Bradford district. Fifteen sacks of cement are run in on top of the flood packer. From 150 to 175 ft. of casing is used.

Oklahoma-type pumping jacks are used and are set on small concrete foundations. The jacks have a 32-in. stroke and operate at the rate of 10 to 12 s.p.m. Power is provided by a 20-ft. Reid band wheel driven by a Reid 30-hp. gas engine. The wells are pumped 24 hours a day because of the large volume of fluid handled.

Water is obtained from the shallow sand by a deep-well turbine pump which delivers the water direct to a Cameron two-stage centrifugal pump at the pressure plant. Each of the intake wells is equipped with a meter for recording the volume of water injected and daily records of the volume injected in each well are kept.

Water and Oil Lines Buried

Both water and oil lines are buried to prevent freezing in the winter. There are no individual receiving tanks and the oil is pumped to centrally located storage tanks after passing through a gas, oil and water separator.

With the first flood having proved successful from an experimental standpoint, the Dymo Oil Corp. has completed a second development on a neighboring property. The second development consists of 38 acres on which 27 water wells and 19 new oil-producing wells have been drilled and 25 old producing wells are affected by the flood. Water was injected in this property for the first time on February 12, 1940. This development has proven comparable to the first in so far as sand conditions, water-intake volumes, etc., are concerned, though average sand depth is slightly less.

Two 20-ft. Reid band-wheel powers, driven by electric motors, are pumping wells on the second development. The capacity of the pressure plant, which serves both properties, was increased by the addition of a six-stage Cameron centrifugal pump. In addition to the pressure equipment, the plant also houses a 237-kva. Westinghouse generator driven by a 275-hp. Ingersoll-Rand V-type six-cylinder engine. All engines are operated on lease No. 995. Proper engine-cooling water temperatures are maintained by exchanging hot engine water with cold fresh water. Manufactured power is driving both central powers on the second development and turbine and pressure pumps.

The Dymo Oil Corp. has approximately 2,000 acres in the Chatham pool, which will be developed progressively if it proves adaptable to flooding. Its properties were acquired mainly from E. R. Edson & Son Co. So far only one other company, the Thornton Producing Corp., of Wellsville, N. Y., has started flooding operations in the field. However, several of the other producers have indicated that they will core the sand on their properties and if it proves floodable will also adopt the practice.

The Chatham pool is in western Medina County (see Fig. 2), approximately 35 miles southwest of Cleveland and 25 miles west of Akron. It is an isolated Berea sand pool, though there is Clinton sand gas production north, east and south of it. The bulk of Berea production is found well to the east and south in Ohio, some in Pennsylvania and in West Virginia. The sand outcrops at Berea, Ohio, 28 miles northeast of the pool. It is the lowest member of the Pocono series in the Mississippian.

From the record to date of Ohio's first water flood, it is concluded that the Berea sand, as found in the Chatham pool, can be flooded economically. While development costs are lower than at Bradford because of shallower drilling and lower pressures, this factor is offset by the much lower price of the crude oil. Extremely wide and unpredictable variations in sand thicknesses and the total absence of sand in some places indicate that development should be undertaken progressively. While the pioneering efforts of the Dymo Oil Corp., yet in the experimental stage, have given indications of being successful, they also indicate that water flooding in the Chatham pool is attendant with risks at least commensurate with similar operations elsewhere.

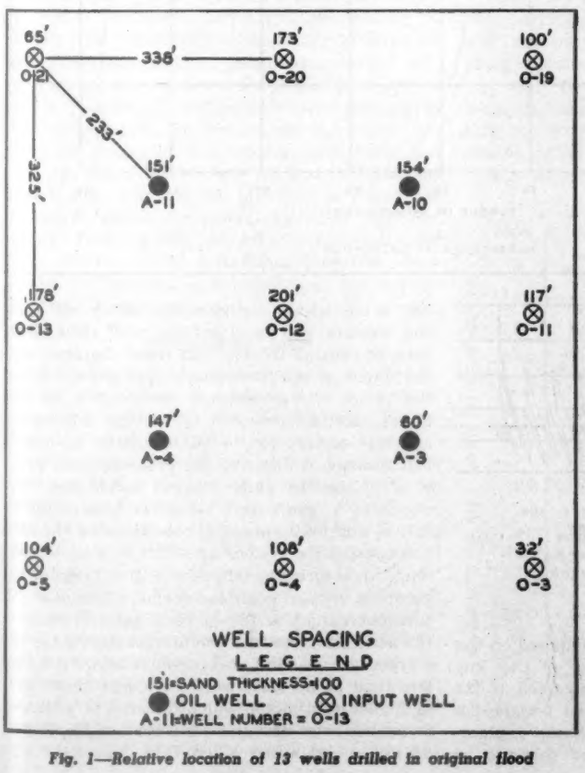


Fig. 1—Relative location of 13 wells drilled in original flood

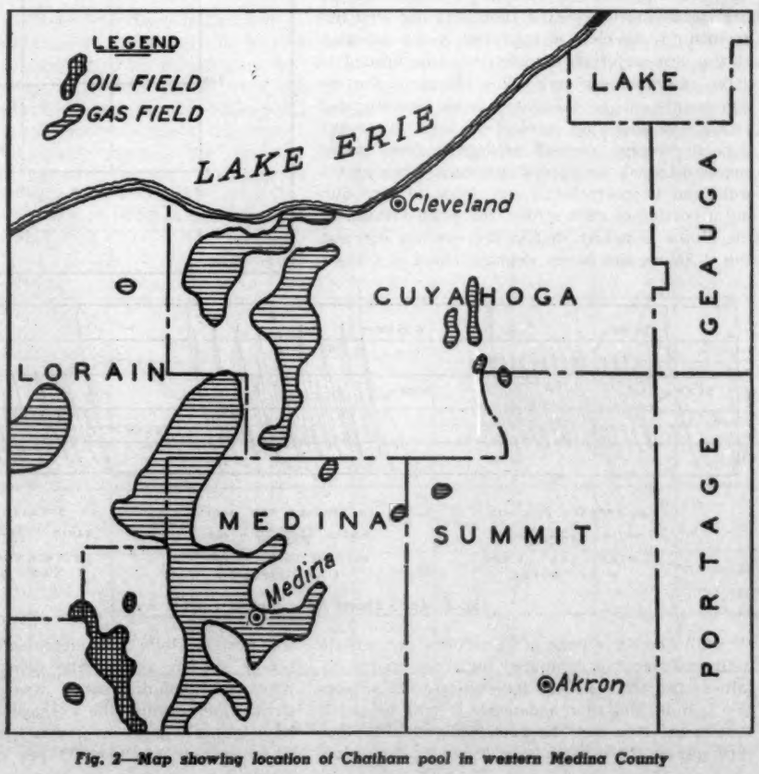


Fig. 2—Map showing location of Chatham pool in western Medina County

Electrification of Pumping Equipment in Illinois

By R. E. HAMMOND
Petroleum Engineer, Carter Oil Co., St. Elmo, Ill.

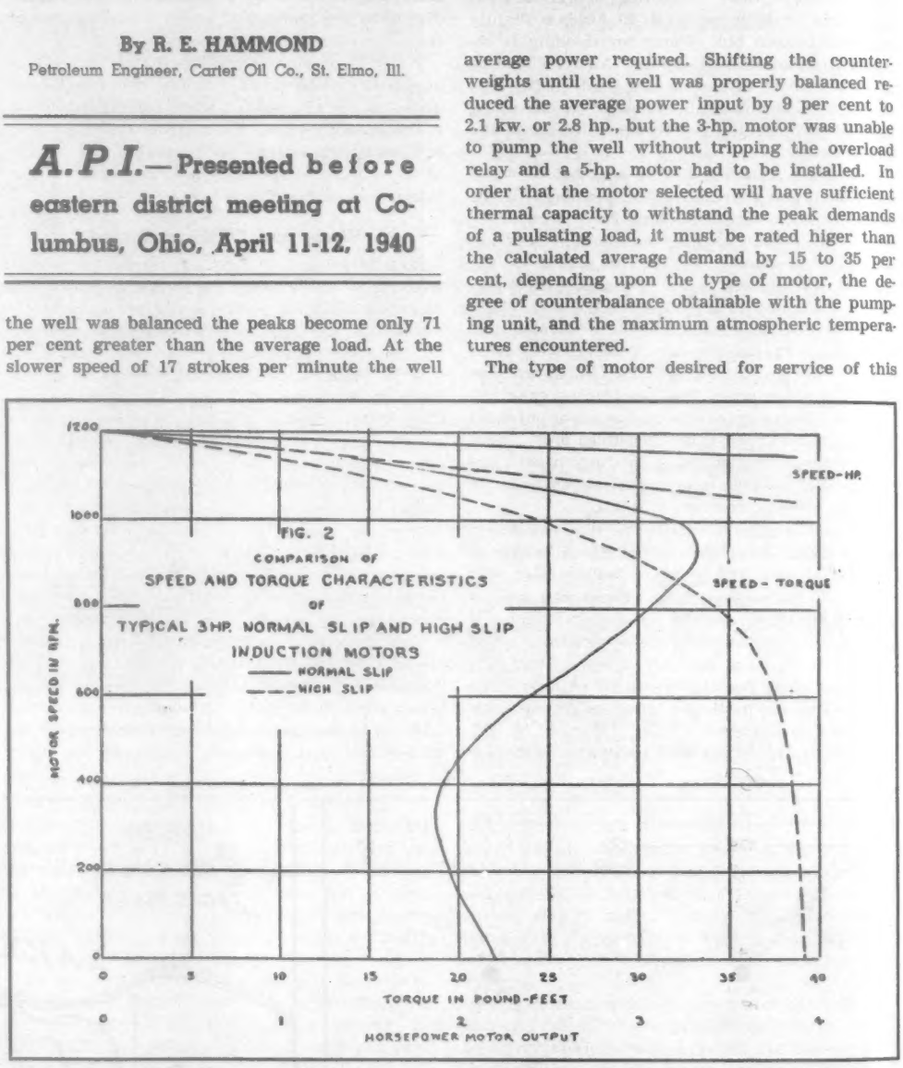
A.P.I.—Presented before eastern district meeting at Columbus, Ohio, April 11-12, 1940

ELECTRIC power has been used for oil-well pumping throughout the petroleum industry for the past 10 to 15 years, but the more recent development of oil fields in the Illinois basin has brought a stronger tendency toward the use of electric pumping equipment than any of the older producing territories. Illinois basin operators who have chosen this producing method have been influenced largely by the depth and producing characteristics of these wells. The relatively shallow depths and low potentials permit the use of small electric motors and distribution equipment, thus reducing the initial investment from that required for deeper wells, while the anticipated long producing life of certain pools allows the maximum benefit of the low operating expenses usually obtained with the use of electrical equipment. The choice of electric pumping might also be influenced by the availability of small-sized unit pumpers, by the topography of the field, by the well-spacing pattern, or by any number of other considerations. After an operator has decided to install electric pumping equipment, however, there are several factors affecting his installation which must then be considered. The purpose of this paper is to present some of these factors and to discuss briefly a few of the problems which might be encountered in operating long-lived shallow properties of the sort so prominent in the Illinois basin.

Motor

Considering the typical Illinois basin installation which places a unit pumper at each well, the first problem confronting the operating who has decided to use electric pumping is the selection of the size and type of electric motor needed to drive the pumping unit. The electric-power requirements can be calculated from the estimated production and fluid level of the well by assuming an average over-all efficiency from motor sheave to stock tanks of 35 per cent. Since an oil-well load is intermittent and drops to zero during a portion of each stroke, the peak demand on the motor is nearly double the average demand. Fig. 1 shows the power demand chart of a 1,500-ft. well when pumping at 17 strokes per minute without balancing compared with the charts obtained after the well was speeded up to 22 strokes per minute and then balanced. It will be noted that in the first case the peak demand is 114 per cent greater than the average demand, while after the well was balanced the peaks become only 71 per cent greater than the average load. At the slower speed of 17 strokes per minute the well was powered by a 3-hp. motor and imposed on the power system an average demand of 1.45 kw. After the pumping speed was increased to 22 strokes per minute the average load became 2.3 kw.; thus a 30 per cent increase in pump displacement brought about a 59 per cent increase in average power required. Shifting the counterweights until the well was properly balanced reduced the average power input by 9 per cent to 2.1 kw. or 2.8 hp., but the 3-hp. motor was unable to pump the well without tripping the overload relay and a 5-hp. motor had to be installed. In order that the motor selected will have sufficient thermal capacity to withstand the peak demands of a pulsating load, it must be rated higer than the calculated average demand by 15 to 35 per cent, depending upon the type of motor, the degree of counterbalance obtainable with the pumping unit, and the maximum atmospheric temperatures encountered.

The type of motor desired for service of this sort is one which is rugged and which will stand the weather and hard service with little likelihood of causing trouble, and these characteristics are found in the three-phase squirrel-cage induction motor with splashproof construction. Its only direct maintenance need is bearing lubrication, and this expense can be minimized by the use of ball bearings which require greasing once every 9 to 12 months under normal conditions. The choice of a "high slip" induction motor will result in improved operating conditions on the electric distribution system since this type motor will tend to absorb the shocks of the intermittent pumping load, whereas the normal slip motor will transmit surges to the power lines and back to the generating station. The normal slip motor has a speed at rated full load of about 2 to 4 per cent less than at no load, while the term "high slip" is applied to a motor which, because of a higher-resistance rotor design, loses from 8 to 10 per cent of its no-load speed when fully loaded. Fig. 2



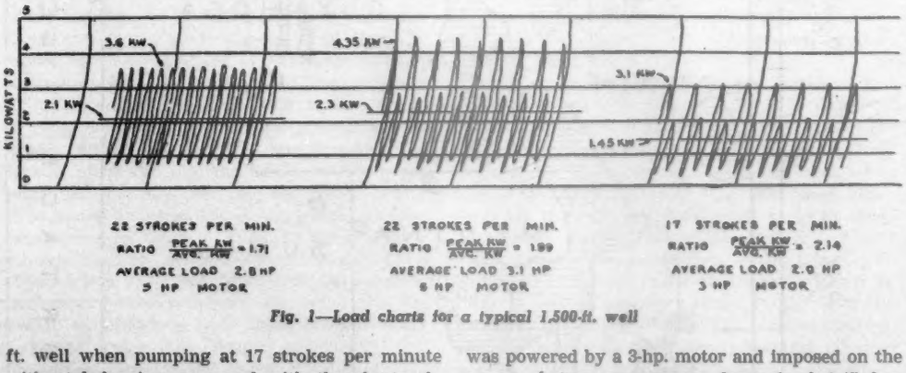


Fig. 1—Load charts for a typical 1,500-ft. well

shows the speed and torque characteristics of typical normal slip and high-slip induction motors of 3-hp. rating. It is apparent that the torque required by the well load at any time is supplied at a lower speed in the case of the high-slip motor, thereby resulting in less power being demanded from the power system. The high-slip motor possesses the further advantages of higher starting torque and better efficiency with a pulsating load.

The use of high-slip motors reduces the peak power demands of each well, but the intermittent character of the load remains. If all wells on a distribution system are pumped at the same speed, periods of "bunching" will occur during which the individual peaks will become synchronized and the plant load will become highly pulsating. In order to reduce the severity and rate of occurrence of this condition, motors can be equipped with sheaves of slightly different diameters to give a variety of pumping speeds. The same result is obtained with only one-size sheave if the wells are equipped with different types of pumping units having varying gear-reduction ratios.

Motor Control and Protection

After the operator has selected the size and type of motor needed for his wells, the next factor to be considered is the type of equipment he needs to control and protect the motor. Necessary equipment consists of a suitably sized magnetic motor starter with thermal relay for overload protection, meter protector for lightning surges, and a knife-blade main switch with cartridge-type fuses so that the entire installation can be disconnected from the line. The motor is controlled by a "start-stop" pushbutton which operates the magnetic starter. All this equipment must be encased in a weatherproof cabinet which is in turn mounted on the well service pole. The leads from control cabinet to motor are enclosed in underground conduit. Further desirable protection can be obtained by including an undervoltage relay in this installation. If the well is to be operated automatically, the additional equipment required is a time switch, which can be set to start and stop the well at the desired times of day, and a selector switch which permits a choice of either manual or automatic control, the latter switch replacing the "start-stop" pushbutton referred to above. Certain electrical manufacturers are now marketing a factory-fabricated motor-control panel which includes all of the above-mentioned equipment at a cost approximately the same as if the operator purchased only the necessary items and mounted them in an empty cabinet. For this reason, it may behoove the operator to install the complete control equipment, including the time switch, even though his initial production practices are not suited to automatic control, since a later installation of this equipment will require increased investment.

Distribution Lines

In considering his requirements for an electric distribution system, the operator is particularly interested in the line voltage and type of construction to use as well as the pattern to be followed in building from one well to another. The question of line voltage is, of course, closely related to the extent of the property being electrified. In the case of a small installation serving just one or two leases, it is likely that a line of only the well voltage could be used, this usually being 440 volts. For a larger property extending perhaps 2 or 3 miles, a primary voltage line of 2,300 volts would probably be necessary, this voltage being reduced to 440 volts by strategically located field substations from which a 440-volt secondary line would interconnect a group of nearby wells. Primary line voltages of 6,900 volts or 13,200 volts are used where greater distances of transmission are involved. Generally speaking, primary voltage lines are erected on pin-type insulators mounted on a crossarm, while secondary voltage lines are mounted on three-spool secondary racks. Wire sizes and substation capacities are determined from the anticipated individual well demands and the fraction of the total number of wells which will be pumping at any one time under the particular producing conditions. Primary lines are usually made of bare solid copper wire, while secondary voltage lines are preferably built with weatherproofed insulated wire as protection against possible damages resulting from torn-down lines.

Particular care should be taken in planning the layout of the distribution system so as to obtain favorable operating conditions with the minimum investment. Wherever possible, the secondary lines from a field substation to a group of wells should be built in a closed loop, because this design affords two parallel paths for current flow,

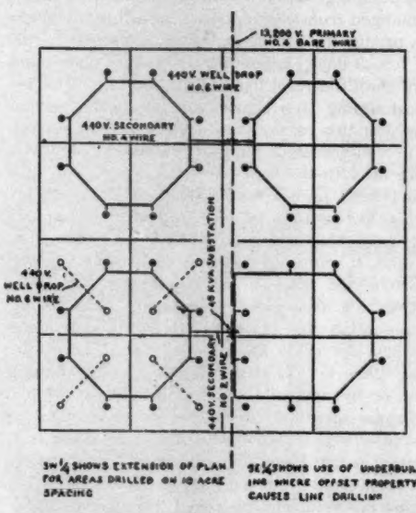

13,200 V. PRIMARY NO. 4 BARE WIRE
440V. WELL DROP NO. 6 WIRE
440 V. SECONDARY NO. 4 WIRE
440 V. WELL DROP NO. 6 WIRE
40 KVA SUBSTATION
440 V. SECONDARY NO. 2 WIRE
SW¼ SHOWS EXTENSION OF PLAN FOR AREAS DRILLED ON 10 ACRE SPACING
SE¼ SHOWS USE OF UNDERBUILDING WHERE OFFSET PROPERTY CAUSES LINE DRILLING

Fig. 3—Plan of electric-power line development for one section drilled on sunflower pattern

thus reducing voltage drop from substation to well and providing greater continuity of service since a break at any one point in the loop will not shut off power to any well served from the loop. Another point to be kept in mind while planning the distribution system is the saving which can be effected by underbuilding. Fig. 3 shows how looping and underbuilding have been applied by one Illinois company in building a distribution system to serve wells spaced on a sunflower pattern in conjunction with gas injection. These factors should be considered in planning the location of the field substations so that secondary-line construction and operation may be taken into full account. Concrete foundations for the pumping units should preferably be run after the layout of the system lines has been completed. Wherever possible, the unit should be set on the side of the well facing the power line to reduce the length of the well-service drop. If the unit is set on the opposite side of the well, unnecessary expense is incurred in running underground conduit from the well-service pole completely around the well to the motor location at the rear of the unit.

Source of Power

The operator may purchase the electric power needed for his distribution system or generate it himself by gas or diesel engines. If his primary line is either 440-volt or 2,300-volt, electric power can be generated direct at the proper voltage, but where the primary line voltage is greater than 2,300 volts power is usually generated at a lower voltage and then stepped up to the proper line voltage by a substation located at the generating plant. When an operator elects to generate his own power and the proposed plant is to include more than one generating unit, he should make a careful study of his future load conditions in order to prevent overbuilding. In all probability he will decide that his initial load, because of existing high fluid levels, will not be his maximum load but rather that the peak will occur at some later date after which a gradual but continued decline will take place. Under these conditions it may prove more economical to install only such generating capacity as can be operated at a high average load factor over the expected life of the pool and to purchase the power requirements over and above this capacity for the relatively short period that the peak load exists. For example, Fig. 4 shows the load record of a plant supplying electric power to a group of pumping wells in an Oklahoma pool. It will be noted that the peak plant demand occurred 1 year after the plant was placed in operation. This installation had a rated capacity of 1,400 kw. and a weighted average plant load factor of 48 per cent for the first 10 years of operation. If the plant size had been only 1,000 kw. and the excess power requirements for 2 years had been purchased, the average load factor for the 10-year period would have been 64 per cent, and consequently the average cost per kilowatt-hour generated would have been

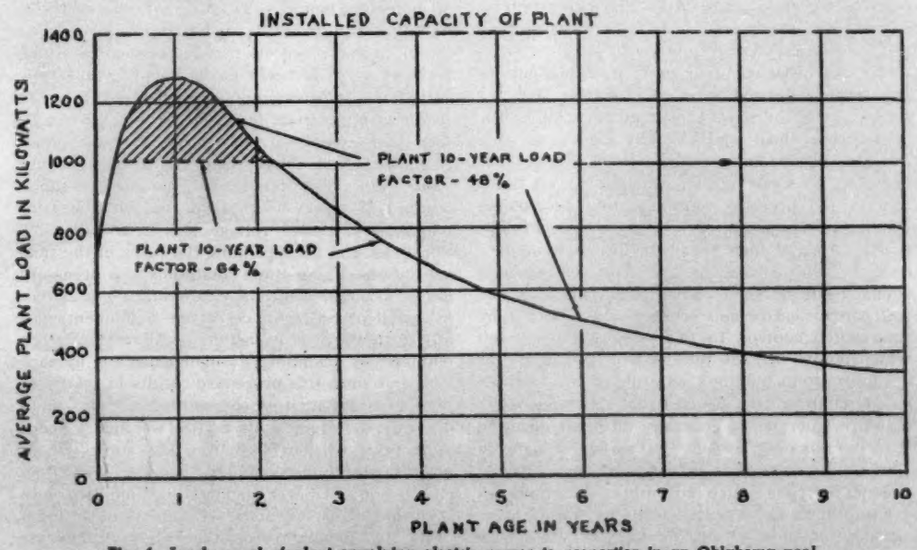


Fig. 4—Load record of plant supplying electric power to properties in an Oklahoma pool

reduced. Such decreased unit production expense would probably provide a saving over 10 years which would be greater than the cost of the power purchased. The load decline indicated in the chart is for purpose of illustration only and is not intended to represent typical Illinois operation.

Installation Costs

Generating stations using gas engines for prime movers can be installed for from $125 to $150 per kilowatt, depending upon the size. About 70 to 80 per cent of this cost represents physical equipment.

Primary voltage lines of 2,300 to 13,200 volts built with bare solid copper wire and using single cross-arm construction cost from $1,200 to $1,500 per mile, depending upon the voltage. About 50 to 60 per cent of this cost is for material and the remainder for labor, transportation, and overhead charges.

Field-type substations, which reduce the above primary voltages to 440 volts and which are not more than 37½ kva. capacity, can be built by mounting one three-phase transformer on a pole. Larger substations require a structural steel support between two poles and are usually built with three single-phase transformers. Field substation costs vary from $10 to $17 per kva. installed, complete with lightning arresters and fuse cutouts, the cost depending largely upon the primary voltage used and the capacity installed. Approximately 85 to 90 per cent of this cost is tangible investment.

Secondary lines of 440 volts constructed of weatherproofed solid copper wire mounted on three-spool secondary racks cost from $1,400 to $1,800 per mile, depending upon the size of wire used. As in the case of primary lines, from 50 to 60 per cent of this cost is for material.

Well-service equipment consisting of one span of secondary line, complete motor control panel, and splashproof, high-slip, ball-bearing induction motor of 3 or 7½-hp. rating costs from $200 to $250 per well, of which about 85 per cent is for physical equipment.

Operation

Regardless of whether electric power is purchased or generated, the most efficient operation will result from maintaining a total power-system load which is as steady and uniform as possible. Individual well demands should be stabilized by maintaining proper counterbalance on the pumping units, thus minimizing both the magnitude of the power surges and the average power required. If certain wells do not have to pump all day to make their production, either because they are poor wells which pump off or good wells which are prorated, their daily pumping periods should be staggered in such a manner that the same number of wells are pumping at all times. With proper load control, daily load factors on the generating plant will be well in excess of 90 per cent, and, even after considering all down time caused either by routine maintenance of the generating equipment or by producing conditions such as lack of tank room and produced allowables, the monthly load factor for oil-well pumping should be from 80 to 90 per cent. This load control can be easily and economically effected by time-switch control. In the case of a poor well which pumps off, the time switch can be set for an intermittent pumping schedule of two or three equal pumping periods each day interspaced by equal rest periods of generally different duration than the pumping periods. One major company in Illinois reduced average pumping time nearly one-half by time-switch intermittent pumping on a group of 32 low-potential wells having an average production of 22 bbl. per day; yet there was no sacrifice of production.

TABLE 1—COMPARISON OF PRODUCTION UNDER CONTINUOUS AND INTERMITTENT PUMPING

Number wells on lease	Daily well-hours pumping time		Lease production for 10-day period, bbl.	
	Continuous	Intermittent	Continuous	Intermittent
1	24	15	276	300
1	24	9	194	160
1	24	12	314	322
1	24	12	211	208
1	24	18	193	181
2	48	20	457	414
2	48	16	155	157
3	72	40	556	577
4	96	66	1,520	1,532
Total	384 (16 wells)	208 (9 wells)	3,876	3,851

Table 1 shows production data on 16 of the wells referred to above for 10 days on straight-time pumping compared with 10 days on intermittent pumping. When a well of the class discussed is changed from continuous to intermittent pumping, production can be expected to fall off sharply for 1 to 3 days, depending upon sand conditions, until the fluid level has built up sufficient to permit pumping the former volume in the shorter time. For this reason the 10-day period of production on intermittent pumping referred to in Table 1 begins with the first day after setting the time switch that production levelled off. The 10-day period for continuous pumping is that immediately preceding the day automatic control was instituted. It will be noted that some wells showed a production increase on intermittent pumping and some a decrease, the average production being essentially the same as with continuous pumping. The decreases are believed to be caused by down time, by too great a reduction in pumping time, or by normal fluctuations in daily producing characteristics. Since the power demand of this type well is essentially the same when it is running after pumping off as when actually pumping small volumes, the energy consumption per barrel pumped is reduced practically 50 per cent if the same production is obtained in half the pumping time. In addition to the power saving, improved pumping efficiency, and increased control over plant load, intermittent pumping reduces wear on both surface and bottom-hole pumping equipment and, under certain circumstances, can give rise to savings in pumping labor.

Poor Power-Factor Condition

Operating difficulties may be caused by the typical poor power factor condition inherent in all induction motor loads if the generation or distribution equipment is operated at or near its power rating. Since electrical equipment is usually rated at 80 per cent power factor, while typical Illinois oil-well pumping loads have a power factor ranging from 40 to 65 per cent, it can be seen that excess current flow will result under full rated real power load. This high current value, especially during hot summer temperatures, will cause overheating in the generator windings, excessive voltage loss in the distribution lines, and perhaps blow the fuses in the field substations. Under these conditions it is necessary either to obtain additional generating capacity or to install power-factor corrective equipment, usually in the form of capacitors. Best results can be obtained by installing a small capacitor at each well, but since this procedure results in relatively high investment, it is common practice to place one or two larger units on the secondary loops at points as distant from the field substation as possible. In the 10-kva. size, 440-volt, capacitors cost about $13 per kva. installed, complete with lightning arresters, on a secondary pole. Larger units for installation on the primary lines are somewhat less expensive, but here the capacitors can only improve the power factor on the primary line and generator with no improvement being enjoyed by the secondary lines or field substations.

Experience has shown that the power demands of an oil-well pumping load can be expected to increase somewhat during the cold winter months because of the increased viscosity of the oils and greases used for lubricating the surface pumping equipment and the deposition of paraffin within the lead lines restricting the opening and causing abnormal pressures on the pump. The lubrication problem should be studied as to the possibilities of reducing this increased power loss by using lighter-weight lubricant during the cold months of the year, and care should be taken to keep all lead lines free of paraffin accumulation.

Typical wells in Illinois are equipped with electric motors ranging from 3 to 7½-hp. rating. Actual demands range from about 0.7 kw. on a 1,500-ft. flush well which tends to agitate and flow part of its production to about 5.0 kw. on a fully loaded 7½-hp. motor. Electric energy consumption in a flush pool will range from 0.2 to 0.4 kw.-hr. per barrel pumped, depending upon the fluid level and state of agitation. As the wells decline this consumption will gradually increase to an expected ultimate of 0.8 to 1.0 kw.-hr. per barrel of fluid pumped. In order that these figures can be converted into a money cost per barrel pumped, it is necessary to know the cost of a kilowatt-hour delivered to the well. A reasonable estimate of the average expense of maintaining and depreciating an electric power distribution system might vary from 5 to 8 mills per kilowatt-hour, which cost must be added to the price of energy at the source. In the special case of an oil producer who operates his own generating plant and enjoys certain economic advantages, such as free fuel gas and low operating labor expense, electric power frequently is produced for from 5 to 8 mills per kilowatt-hour at the generator, making the total cost range from 1.0 to 1.6 cents per kilowatt-hour at the well.

Summary

In conclusion, then, the operator who has elected to use electric power for oil-well pumping should consider a variety of factors in selecting his electrical equipment and planning its installation. A few of the most important of these factors are as follows:

1. Advantages of "high slip" induction motors.
2. Possibilities of time-switch control.
3. Location of field substations to permit "looping" and underbuilding of secondary lines.
4. Decreased well-service investment when pumping unit is set on side of well toward power line.
5. Danger of overbuilding generating plants and possibility of savings by use of purchased power for excess requirements during temporary peak-load period.

After the electric system has been built and placed in operation, attention should be given to the following considerations:

1. Power system stabilization through load control and intermittent pumping.
2. Possible advantages of power-factor correction.
3. Increased power requirements during cold winter months.

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Oklahoma Section, A.C.S.

The Oklahoma section of the American Chemical Society will hold a dinner meeting Monday night, April 22, at the south annex of the college cafeteria, at Stillwater, Okla. Following the dinner and a short business session B. B. Morton of the development and research division, International Nickel Co., will speak on "Some Practical Applications of Corrosion Testing."

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A.P.I. ABSTRACTS

Papers presented before eastern district meeting at Columbus, Ohio, April 11-12, 1940

Review of Illinios Practices And Production

ED SHAKELY and HOLMES MILLER (Exploitation Engineers, Shell Oil Co., Inc., Centralia, Ill.).

A review of the drilling and production statistics shows that during 1939 3,950 tests were drilled in the Illinois basin, of which 3,100 were completed as oil wells, 25 were gas wells, and about 825 were dry holes. This marks an increase of 58 per cent over the preceding year. Average initial production of the wells completed was 430 bbl. The drilling of 600 wildcats resulted in the discovery of 11 new pools with an estimated reserve of 21,500,000 bbl. Extensions and deeper drilling increased the reserves in known pools by 207,000,000 bbl., putting the total reserve discovered in the past 3 years to 377,000,000 bbl. Daily average production increased from 53,500 bbl. in 1939 to 247,000 bbl. in 1940, a jump of 360 per cent.

Rotary drilling continues to be the method favored and steady advances have been made in unitizing the equipment so that moving time has been reduced. Some rigs are using masts instead of derricks and slim-hole units with masts, draw works, mud pump, and prime mover are mounted on a single truck unit. Most operators favor 8¾-in. hole with 7-in. casing for the oil string. One operator is using 7⅞-in. hole and 6-in. welded oil string. Some others are drilling 7¾-in. hole and running 5½-in. casing; with the slim-hole rig, 6¼-in. holes are being drilled and 4½-in. casing set. Wear on tool joints has been compensated by the use of oversized joints which are generally ¼ in. larger than the regular size.

Directional drilling, the application of which has been more or less limited to softer formations such as those penetrated in the deeper wells of the Gulf Coast, is now being successfully applied in the relatively hard formations encountered in the comparatively shallow Illinois wells. A vertical hole is drilled to a depth of 500 ft. and below this point 4 to 12 removable whipstocks are run to obtain the desired angle of deflection. It has been possible to deflect holes laterally from 100 to 400 ft. with the total depth of the hole being 1,800 ft.

Proper care of the drilling mud has become increasingly important in the Illinois basin. To prevent loss of fluid and contamination of the pay formations in the Salem field, operators are conditioning the drilling fluid with bentonitic clay, cotton-seed hulls, cane fiber, and cellophane flakes. Mud is maintained at an average weight of 9¾ lb. per gal. and at a viscosity of 43 seconds. Divergence from these figures either way will result in a loss of circulation.

Both rotary and cable-tool coring are practiced extensively and electrical well surveying is finding an increased application in practically every field in the basin. The old-style V-thread joint on the casing has been supplanted to a great extent by new A.P.I. round thread. There has also been 1,500,000 ft. of field-welded casing used in the Illinois basin. Cementing procedures have been improved during the past year by mixing small percentages of bentonitic clay with the cement and using a water ratio of 7½ gal. per sack, it has been possible to reduce the channeling and the loss of cement in thief formations. The development of the Devonian lime in Salem has introduced some new problems and stage cementing is being used to seal the thief formations.

Gun-perforating is often used for the completion of wildcats. In multiple-sand completions the casing is removed by a special bit or acidizing, but experience has shown that the magnesium alloy pipe can be removed by a nitroglycerin shot. Steel casing can be milled out with a newly perfected tool.

New problems are being encountered in the reconditioning of oil wells. Improvements have been made in acid treating such as intensifiers and addition of compounds to prevent the formation of emulsions. Two methods of shooting are used, the discharge with a time bomb with a sand, gravel, or cement tamp and the discharge with a squib or time bomb with fluid being used for a tamp.

●

Water Treatment for the Prevention Of Scale and Corrosion in Connection With Water Flooding

F. T. REDMAN (Hall Laboratories, Pittsburgh, Pa.) and R. F. MACKIE (Consulting Chemist, Bradford, Pa.).

Coagulation, filtration, softening with both chemicals and zeolite, chlorination, and in some cases recarbonation, have frequently been applied to waters used for flooding in an attempt to make them completely stable before their injection into the oil-bearing sands. Even with the best of treatment after-precipitation of calcium carbonate often takes place in these water supplies.

When the carbonate ion concentration of a water high in calcium and bicarbonate ions is increased by treatment with sodium carbonate, sodium hydroxide, lime, or by heating, it may be stabilized by the addition of 2 p.p.m. of sodium hexametaphosphate. It is thought at the present time that after the crystal nuclei have had sufficient time to form they are immediately surrounded by an adsorbed film of sodium hexametaphosphate which prohibits further growths. This theory is further borne out by the fact that threshold-treated waters which are pumped in pipe lines already incrusted with calcium carbonate do not show complete stabilization for an appreciable time after the treatment is applied. This indicates that the small amount of metaphosphate which is being carried by the water is being adsorbed on the calcium carbonate lining of the pipe line and is not available for stabilization until such a time as all calcium carbonate in contact with the water stream is coated with the invisible film of metaphosphate.

The use of a small amount of sodium hexametaphosphate has been called threshold treatment because it halts the precipitation on the "threshold" of crystalization. Several oil-field applications involving stabilization of flooding water with hexametaphosphate have already been made. In particular, one of these is a raw-water supply which is aerated, treated with lime, filtered, and then stabilized with 2 p.p.m. of sodium hexametaphosphate. The sodium hexametaphosphate not only stabilizes this water but there is evidence that the corrosion is less, due to the smaller increase in iron content. Treatment of water containing as high as 1,000 p.p.m. of calcium carbonate by this method has stabilized them against the addition of alkalies.

In some flooding operations the water picks up large quantities of calcium sulfate and precipitates it in the tail pipes and lower casings of the wells which are being pumped. The addition of 5 to 10 p.p.m. of metaphosphate will eliminate the precipitation of calcium sulfate from solution even when this salt is present in amounts several times the normal solubility. So far attempts have been made to get the metaphosphate only into the flooding waters but if it is not possible to carry enough metaphosphate to the producing well it may be necessary to feed the chemical directly to the producing well to alleviate this deposition.

Waters which are carrying iron and which by their nature are aggressive toward iron are also a source of trouble to oil-flooding operations. It is a well-known fact that ferrous iron in water will oxidize and precipitate as hydrated ferric oxide. This iron may be removed by aeration and the addition of lime followed by filtration, and this process should be used if very much iron is present. If only a small amount of iron is present, sodium hexametaphosphate may be used to prevent difficulty from this source, as the iron is retained in solution and precipitation delayed for a considerable time.

Work in other fields has shown that the addition of between 2 and 5 p.p.m. to aggressive waters will greatly decrease the amount of corrosion of ferrous metals. The mechanism seems to be much the same as that described for the stabilization of waters with respect to calcium carbonate. While not complete, corrosion may be reduced by about 90 per cent. The effect of the metaphosphate seems to be independent of the pH of the water although best results are obtained above a pH value of 6. The action of metaphosphate in controlling corrosion as well as preventing the precipitation of calcium carbonate makes it attractive for treating oil-field brines, as these brines are high in calcium and magnesium salts and are very corrosive. The addition of the sodium hexametaphosphate will lengthen the life of the piping, reduce the iron going into solution and stabilize the calcium carbonate and sulfate. Corrosion has been alleviated in water containing as high as 40,000 p.p.m. of dissolved solids.

●

Multiple Sand Completions

BART DE LAAT (Pure Oil Co., Olney, Ill.).

Multiple-sand completions, or, more properly, multiple-zone completions, are defined as those methods of well completion which permit producing from one or more zones into a common well bore. The primary object is to recover oil more efficiently and with reduced investment and operating expense. The accomplishment of these objectives may involve the production of individual zones selectively, the production of individual zones successively, or the production of multiple zones simultaneously, the well design and construction being carried out accordingly. Only the methods of completion generally used in the Illinois basin fields which will permit these various forms of exploitation are discussed. Mention is made of the improved logging methods which are essential to special completions.

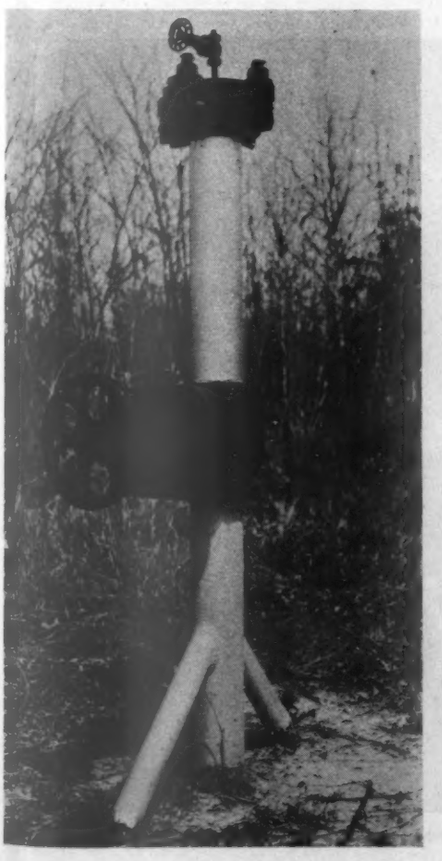
Methods of completion are discussed in their logical sequence of development: first, by the use of especially constructed steel liners; second, by the removal of sections of steel casing with newly developed expanding mills; third, by the insertion of a drillable section or sections in the casing string, the drillable sections being com-

(Continued on Page 65)

Operating Ideas

Heater Prevents Fuel Line Stoppage

When weather conditions combine to increase the freezing effect of the sudden expansion of fuel gas at the regulator, a complete shutoff of fuel to the pumping engine is apt to occur. In the Rodessa field an ingenious heater has been developed which takes gas directly from the high-pressure main and burns it around the joint of fuel line next to the regulator, effectively warming the fuel and eliminating the troublesome freezing. The heater consists of a short length of 6-in. pipe, slipped over the gas line and held centrally around it by means of welded brackets. The 6-in. is closed at one end, with a short stack of 4-in. pipe welded on to carry away burned gases and provide draft through the horizontal heater. A jet on the end of the ¼-in. fuel line serves as burner and by the flow of gas into the open end draws in sufficient air to insure combustion.



Braces Stiffen Blowoff Connection

Checkmating the possibility of expansion and shifting of the main underground, or the possible amplification of pump impulses within the line, combining to break the weld between high-pressure main line and 4-in. blowoff nipple, one company employs braces which practically make the riser a part of the main. Two pipe braces, set at 45° to main and nipple, are welded both to main-line pipe and to the nipple, extending high enough to impart the desired rigidity to the nipple just below the heavy gate which protects the connection against leakage. A flanged coupling, with the blind member tapped for ⅛-in. pipe connection, serves to seal the line when not in use, and yet to permit the checking of line pressures at this point without changing fittings or requiring special rigging. The blowoff valve is placed with its stem parallel to the main line, thus permitting the brace system to check the unbalanced pendulum effect such a one-sided mass might otherwise set up in the riser.

Pump Tool Box Welded to Skids

Spare pump parts, wrenches and other equipment used on the pump are kept in this steel tool box which is welded to the steel frame supporting the pump and engines of a rotary

rig. When the pump is being dismantled, preparatory to moving, all of the parts can be placed in the box and they arrive at the new location along with the pump.

Safety Sealing of Block Gate

The block gates required by law at points where high-pressure gas lines pass under railroad lines find very infrequent use, but present a point for trouble if molested by unauthorized persons. One gas company protects its block gates by welding a "big-inch" nipple to the main, enclosing the gate body and extending aboveground to a height permitting only some 2 in. of the valve stem to project above it. Over the exposed stem is placed a welded cap of the same-size pipe as the riser shield, a lug on one side fitting into a notch in the riser, the other fitted with an extended hasp which slips over a staple welded to the riser. The extended hasp is formed to take in the rim of the gate wheel and permit one padlock to fasten both wheel and cover in place. Since the wheel is but infrequently used, it is buried alongside the riser, with but a small portion of it showing. Quick recovery of the wheel in emergency is afforded by burying the wheel in earth mixed with trash, so that the iron can be readily worked free and raised to the surface — but without exposing much metal to excite the cupidity of scrap-iron "collectors."

Aerial Photographs Furnish Valuable Aid to Geologists

By W. V. HOWARD

IN a previous article (Mar. 14, p. 23) the writer referred to various kinds of science, including pure science and pseudoscience. In order to classify completely the tools of the geologist, another should have been added, namely "art." To the technician, "art" means "fiction" or, possibly a cubist or surrealist painting. Actually, the term means "skill." Two men can take identical cameras and photograph the same scene at the same time getting different results. The camera in each case gives an exact representation of the scene, but one man can take pictures and the other can't. Geological mapping is very similar. If two men have to map a given quadrangle or township, one may take 2 weeks and turn up with an easily readable and satisfactory map, while the other may return after several months with a mess.

A geological map is an interpretation of the geological observations made by the geologist. It does not pretend to show every detail correctly. Much is inferred, and much is quite imaginary. Formation boundaries are shown on the basis of evidence found. A map showing actual boundries, even in an unglaciated area, would require miles of trenching down to bed rock in order to see what a geologist can infer from evidence which he sees on the surface. It would probably cost somewhere in the vicinity of $100,000 to map a township accurately, whereas a reconnaissance map might be made in a day, given a car, roads and a base map on which to plot observations.

There are many requisites to a map, and, in every case, the purpose for which it is intended and the cost must be considered. There is no standard routine which can be applied to all maps in all areas, and, therefore, the skill or art of the geologist is probably of greater importance than his technical training. For that reason, many geologists have found it to their advantage to specialize in field mapping, almost to the exclusion of every other kind of geological work.

Types of Geological Mapping

For field work, ability to observe is paramount, with ability to interpret one's observations a close second. Next in importance comes the ability to adapt one's routine to the topography and geology of the country and to the purpose for which the map is intended. A reconnaissance map may be made in an automobile with speedometer readings for recording distance. Such a map may finally be drawn on a scale of 2 miles to the inch, where an error of a tenth of a mile would only be represented by one-twentieth of an inch on the map. Most reconnaissance maps are made on a scale of half a mile to the inch and surveys may be made by compass and pacing, together with a system of accurately located points based on instrument surveys.

For more detailed mapping, particularly in oil country, where dips are not steep, plane table, or other instrumental surveys are required, but even here, many details are sketched in. Geological mapping is not learned from books or courses, but in the field.

Among the recent developments in mapping and the interpretation of maps, two are deserving of special mention in this series. These are the adaptation of airplane photographs and maps, and the increase in our knowledge of the relationships existing between topographic features and the underlying geology.

At first glance, the use of airplane maps and photographs might appear to be one of the many ways of dispensing with the use of geologists. The airplane photograph shows more detail than the field geologist could discover in many months. In fact, it may be said that it shows details that he might never discover. This is exemplified by an airplane photograph of a portion of Cowley County, Kansas (Fig. 1). Here the contrast between individual beds shows up plainly. At a glance, it is possible to observe that the structure is essentially horizontal. The correspondence between beds of vegetation, either of type or intensity, is plainly shown in the valley in the eastern portion of the photograph. Many times, changes in vegeta-

All photographs courtesy Aero Exploration Co., Tulsa

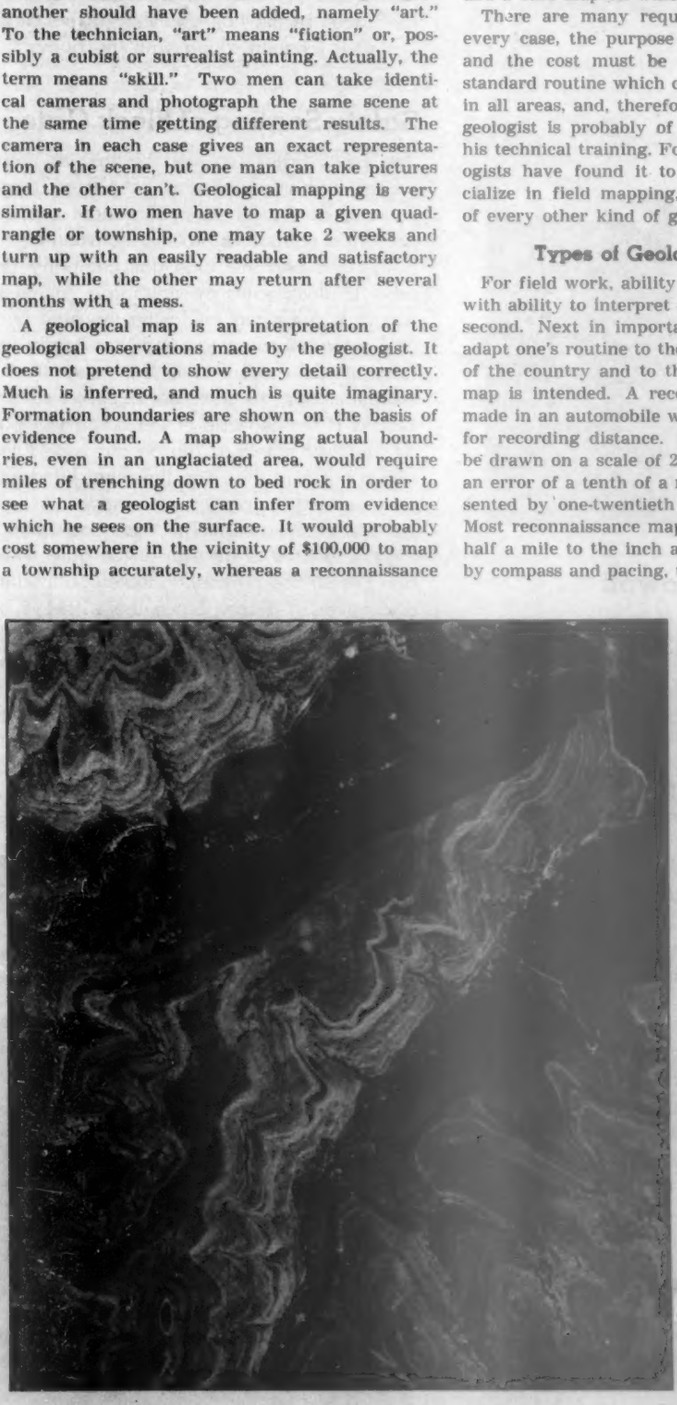


Fig. 1—Photograph of part of Township 35s-8e, Cowley County, Kansas

Fig. 2—Photograph of a plunging anticline in Scott County, Arkansas

tion present the only clues to formation changes over an extensive area. The geologist on the ground is too close to this growth to observe the changes. An ecologist studying the vegetation might, after many weeks, draw a map showing belts of vegetation of certain types or showing that trees grew thicker, or higher, or more luxuriantly in certain belts, but the chances are that his map could not be easily interpreted.

One important advantage of the airplane photograph is that one does not need to know what to look for in advance. The picture is taken and studied. Then certain details stand out. In certain areas, vegetation does not reflect details in the bedrock. In others, it furnishes one of the best means of tracing formation boundaries. Plant ecology surveys conducted indiscriminately throughout the country would result in much waste and even where successful they would only give a small part of the whole picture.

Fig. 2 shows the nose of a plunging anticline in Scott County, Arkansas. There is little question but that a few hours spent in this area would have disclosed the existence of this structure. Such an area is a heaven for the surface geologist. However, the airplane photograph shows more detail than the geologist could find. One interesting feature shown in this photograph is the way in which the drainage conforms to the structure. The small stream rising in the wooded area north of the northern area of cultivation follows the bedding to the northeast. Then it crosses the bedding and reaches a larger stream whose course also follows the strike for some distance.

Figs. 3 and 4, representing portions of Woods County, show much less geological detail than the others. The irregularity of the dendritic drainage (resembling the veins in a leaf) is typical of horizontal or nearly horizontal bedding. The absence of the contrast not due to boundaries or agriculture indicates the comparative absence of key beds in the area and the fact that surface geology would have to be carried on in great detail if any results were to be obtained.

Examination of airplane photographs for obvious geological data is only the first step, however. Taken in conjunction with obliques, or examined with stereoscopic lenses, these photographs show every detail of the topography, and topographic maps can be constructed from them. Magnification, particularly with the stereoscope, makes outcrops of certain formations stand out, such as hard beds which form cliffs in the gullies, or soft ones which permit widening at the base. These often can be correlated over wide areas and as the topographic map gives their exact location and elevation, they can be used in showing the existence of surface structures. Structure contours can be drawn on these key horizons, thus showing structures in great detail.

Interpretation of Results

In this work, the geologist can bring out more than the untrained observer. He knows what the bands mean and can exercise more ingenuity than the draughtsman in making correlations. Most of all, he realizes that his map completed from the photographs may not tell a true story. To insure the correctness of his interpretations, he must go into the field and make traverses across significant areas. The photographs enable him to locate these areas so that no time is wasted in wandering over the country, or wading streams.

In some places, his map may show a new formation coming into what appears to be the apex of an anticline. This area must be visited and the formation examined. If, for example, he is looking of Pennsylvanian production in an area of Permian outcrops, his search will be ended, so far as a single structure is concerned, if he finds a small patch of Mississippi lime in the middle. This would be equally true if he had never seen an airplane photograph, but his chances of discovering this particular key to his problem are made much greater with the pictures.

Even though the photographs show no irregularities, such as Mississippi lime in a Permian area, it is necessary for the geologist to carry on some field work. He must know the types of rock appearing in his area and must prepare several sections so as to correlate his surface geology with subsurface geology down dip. He must find out whether a change along the strike means a lithologic change, a fault with small displacement, or the wedging out of a bed.

Where the area photographed has been surveyed and bench marks are available, these must be located and their elevations checked against his map. If the map checks, he can be certain of the accuracy of his contouring and need not carry out time-consuming instrumental surveys.

Finally, having made his field correlations and having checked the map on the ground, the work of the geologist is not yet finished. The geologist must think in three dimensions. He must use his map as a means of determining what lies 100 or 1,000 ft. below the surface. By projecting beds downward, he builds up a conception of the geology, not of a given surface, but of a block containing several cubic miles. He then checks this against the results of drilling and must find an explanation of any inconsistencies between the two results. Formations which run unexpectedly high may indicate either thinning of beds down dip or the pinching out of beds up dip. Correlation of samples against outcrop samples will indicate which has taken place and the information may easily furnish clues to the existence of stratigraphic traps.

The airplane photograph is by no means indispensable. It has never disclosed anything which could not have been found by geology unaided. However, it saves both time and expense and may disclose facts which geology could have found only at prohibitive cost. It has the added advantage in that it preserves for all time the actual evidence shown in the field, not that part of it which the field geologist saw and recorded in his notebooks or on his plane table. It is probable that no other recent single advance has been made in surface mapping which is comparable to the use of the airplane photograph.

Fig. 3—Showing dissection of an area of flat-lying rocks, Woods County, Oklahoma

Fig. 4—Showing high degree of dissection of flat-lying rocks, Woods County, Oklahoma

Mixture of Ketones Used to Dewax Motor Lubricants

By A. J. MUELLER
Imperial Oil, Ltd.

THE commercial operation since October 1938 of a 2,000-bbl. per day solvent-dewaxing plant at the Sarnia refinery of Imperial Oil, Ltd., has accented the superior properties of a mixture of methyl *n*-butyl ketone and methyl *n*-propyl ketone as a dewaxing solvent. The laboratory work, on which the commercial operation was based, were originally reported[1] as:

"From the viewpoint of wax solubility, miscibility temperature with oil, filter rates and cold test-dewaxing temperature relationship, methyl *n*-butyl ketone behaves in an excellent manner. Its vapor pressure is such as to render recovery a comparatively simple matter without entailing large evaporation losses. It is stable and noncorrosive under distillation conditions; it is nontoxic, and, due to its characteristic smell, its presence can be noted long before the concentration reaches the lower explosive limit, making it a safe solvent. The cost of the solvent is reasonable, and in the price range of selective solvents already successfully employed by the industry."

The plant data included here show how these conclusions, which were equally applicable to the mixed-ketone solvent, were developed into a commercial reality.

Adoption of Mixed Ketones

The laboratory investigation of dewaxing solvents had indicated that, except for its higher miscibility temperature with oil, its lower vapor pressure, and its higher solubility in water, methyl *n*-propyl ketone would be considered superior to methyl *n*-butyl ketone as a dewaxing solvent. The advantages of methyl *n*-propyl ketone lay in its lower solubility for wax, higher filtering rate, lower cost, and the fact that pour point of the finished oil is considerably below the dewaxing temperature.

For the plant operation a mixture of the two ketones was adopted. It was found that (*a*) the disadvantages of the methyl *n*-propyl ketone were nullified by the use of suitable portions, by adequate condensing equipment, and by deketonizing all water discarded from the plant; (b) the various advantages of this solvent were substantially utilized.

Basic Operation of the Plant

The flow diagram roughly indicates the operation of the dewaxing process. The charge waxy distillate is diluted with about 2.5 parts of solvent, cycle-wash solvent from the filter being used for this purpose. The diluted charge is chilled by a combination of "shock" and "controlled" chilling to a specified filtering temperature which is usually well above the desired pour temperature of the dewaxed oil. The chilled mixture enters a rotary filter where, under a blanket of flue gas, the oil and solvent are filtered off under vacuum. The cold filtrate is first utilized (in series with cycle-wash solvent) in the heat-exchange system for the "controlled" chilling, and it is then stripped of solvent, in a two-stage atmospheric, vacuum, and steam-solvent recovery system, to produce the dewaxed oil. As the filter rotates the filter cake is washed with fresh solvent, and then released from the cloth into a slack-wax receiver. The slack wax is stripped of solvent in a manner similar to the dewaxed oil, following which it is acid treated, sweated, and clay contacted to finish.

The traces of solvent remaining in the dewaxed oil and recovered wax after the dewaxing process are completely removed in the subsequent finishing operations on these stocks.

Operating Data

Four cuts of waxy distillate from Mid-Continent or Louden (Illinois) crudes are the stocks regularly processed at the dewaxing plant. These cuts are as follows:

Paraffin distillate, viscosity 150 at 100° F.
Light motor, viscosity 240/250 at 100° F.
Intermediate distillate, 75/78 at 210° F.
Heavy motor distillate, 205 at 210° F.

Typical operating conditions for the processing of these stocks are shown in the accompanying table.

Outstanding Features

The outstanding features of the design of the plant and conclusions to be drawn from the operating data are:

1. The mixed-ketone solvent used in this process permits filter rates of the order of 6 gal. dewaxed oil per square foot per hour, as solvent : oil ratios of less than 2:1.

2. The use of this solvent also permits a spread between the dewaxing temperature and the pour of the dewaxing oil, the pour on certain stocks being as much as 16° F. below the filtering temperature.

3. The washing of the wax cake from the paraffin and light motor distillates to oil contents of 6 to 8 per cent simplifies the subsequent sweating and at the same time increases the yield of the waxes.

4. The solvent losses have been reduced in recent periods to as low as 0.06 per cent based on oil charged, the average figure being 0.1 per cent.

5. Separating the cycle-wash solvent from the oil-solvent filtrate and employing it for diluting the incoming charge economically reduces the quantity of solvent to be recovered.

6. This separation also prevents the contamination of the filtrate with wax dissolved in the wash solvent and hence the initial low pour of the filtered oil is preserved.

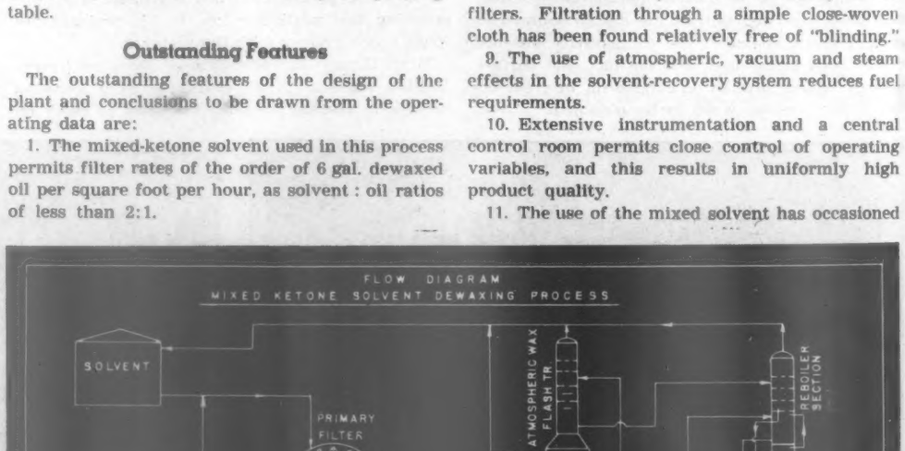
7. Except for the "controlled chilling" range from 90° F. to 30° F., shock chilling is used throughout.

8. No filter-aid or precoat is necessary in the filters. Filtration through a simple close-woven cloth has been found relatively free of "blinding."

9. The use of atmospheric, vacuum and steam effects in the solvent-recovery system reduces fuel requirements.

10. Extensive instrumentation and a central control room permits close control of operating variables, and this results in uniformly high product quality.

11. The use of the mixed solvent has occasioned



1. "Methyl *n*-Butyl Ketone as a Dewaxing Solvent," O. S. Pokorny and R. K. Stratford, The Oil and Gas Journal, March 31, 1938, p. 96.

A. C. S. Abstracts

Abstracts of papers presented before the Petroleum Division of the American Chemical Society meeting in Cincinnati, Ohio, April 8 to 12, 1940

The Present Status of the Statistical Method of Calculating Thermodynamic Functions

By E. BRIGHT WILSON, JR.
Mallinckrodt Chemical Laboratory, Harvard University, Cambridge, Mass.

The basic formulas for the approximate calculation of thermodynamic quantities from molecular constants are summarized, including an extensive table of the harmonic oscillator contributions. Theoretical developments of recent years are reviewed, especially those dealing with the problem of internal torsional motions. A discussion of the sources of the necessary molecular constants is given, and a list, with references, of the calculations which have been published is included.

●

Some Observations on the Thermodynamics of Hydrocarbons and Related Compounds

By JOHN G. ASTON
School of Chemistry and Physics, The Pennsylvania State College, State College, Pa.

It is shown that it is necessary to take account of potentials hindering free rotation in calculating thermodynamic functions of hydrocarbons and related compounds from the spectroscopic and molecular data. Values obtained from the third law are correct.

By using the third law results, down to 10° K., the necessary potentials can be obtained and thermodynamic functions calculated from 300° K. to 1200° K. with the aid of the spectroscopic and molecular data.

Thus $\Delta F.^\circ/T$ values are obtained for normal butane, normal pentane, and neopentane from 300° K. to 1200° K. based on thermal data down to 10° K. obtained in this laboratory. The results on the first two make it possible to get free energy values for the higher normal paraffins.

●

Isolation of 3-Methylhexane, Trans-1,2-Dimethylcyclopentane, and Trans-1,3-Dimethylcyclopentane From Petroleum

By AUGUSTUS R. GLASGOW, JR.

The presence of "isoheptane" and "dimethylcyclopentane" in the fraction of petroleum normally boiling between 87° and 98° C. has been reported by many investigators, but except for the work done by Bruun and Hicks-Bruun as part of the American Petroleum Institute Research Project 6 at this bureau, no one has actually separated this fraction into any of its constitutent hydrocarbons. Most previous workers attempted to identify the isoheptane fraction as 2-methylhexane or have reported that while the isoheptanes were present in considerable quantity their separation by physical means was difficult or impossible. The dimethylcyclopentane fraction has been identified as 1,3-dimethylcyclopentane or the identification has been left incomplete. Bruun and Hicks-Bruun isolated 1,1-dimethylcyclopentane from the distillate at 87° to 88° C., and 2-methylhexane from the distillate at 90° to 91° C. There is reported in the present paper by Augustus R. Glasgow, Jr., the isolation and identification of 3-methylhexane, *trans*-1,2-dimethylcyclopentane, and *trans*-1,3-dimethylcyclopentane from the distillate normally boiling between 90° and 92° C.

The fraction of a Mid-Continent petroleum boiling between 90° and 92° C., from which the aromatic hydrocarbons had been previously removed, was substantially resolved into its constituent hydrocarbons. Alternation of atmospheric distillation and azeotropic distillation with methyl alcohol separated the material boiling between 90° and 91.2° C. into a paraffinic concentrate containing approximately 75 per cent of 2-methylhexane and a naphthenic concentrate. From this material *trans*-1,3-dimethylcyclopentane was isolated by crystallization from liquid ethane. A similar procedure separated the material boiling between 91.2° and 92°C. into a naphthenic and a paraffinic concentrate. From the naphthenic concentrate, *trans*-1,2-dimethylcyclopentane was isolated by crystallization from liquid propane plus methane. From the paraffinic concentrate, 3-methylhexane was obtained in the residue from distillations at reduced pressure (215 mm. Hg).

The boiling point, refractive index, freezing point, density, carbon-hydrogen ratio, and critical solution temperature in aniline were determined for the three hydrocarbons. Estimates were made of their concentrations relative to the *n*-heptane content in the original petroleum.

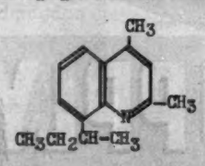
●

Isolation of 2,4-Dimethyl-8-sec.-Butylquinoline From California Petroleum Degradation With Ozone to 1-Methylbutyric Acid

By LESLIE M. SCHENCK and J. B. BAILEY
University of Texas, Austin, Tex.

In chromic acid oxidation of a new $C_{22}H_{29}N$ base from California petroleum, a resulting $C_{12}H_{11}NCOOH$ acid was identified as 2,4-dimethylquinoline-8-carboxylic acid [W. N. Axe, J. Am. Chem. Soc., 61, 1018 (1939)], thus establishing one of the four butyls at position 8 on the quinoline nucleus of the original base.

In ozonization the base was degraded to 1-methyl-butyric acid, $C_2H_5CH(CH_3)COOH$, a result which indicated a secondary butyl at position 8; thus was evolved for the $C_{22}H_{29}N$ base the formula,



a structure now conclusively confirmed by a Combes synthesis [cf. Bull. soc. chim. (2) 49, 91 (1888)].

This method of identifying alkyls at position 8 in quinoline homologs is apparently of general application; at least we find that 2,3,4-trimethyl-8-*n*-propylquinoline yields *n*-butyric acid.

●

Heat of Formations of Gaseous Hydrocarbons

By FREDERICK D. ROSSINI
National Bureau of Standards

The existing data leading to values of the heats of formation of hydrocarbons in the gaseous state are discussed. "Best" values are given for the heats of formation of eight paraffin hydrocarbons (through the pentanes), 16 olefin hydrocarbons (through the pentenes), and three acetylene hydrocarbons, all in the gaseous state. Regularities and irregularities in the heats of formation, and their changes with structure are discussed. Forthcoming data on the hexanes are mentioned.

●

Some Free Energy Data for Typical Hydrocarbons Containing Six or More Carbon Atoms

By GEORGE S. PARKS
Stanford University, California

The third law of thermodynamics has been used to determine the free energies of formation of a number of typical hydrocarbons containing six or more carbon atoms. The sequence—paraffins, cycloparaffins, olefins, monocyclic aromatics, polycyclic aromatics—represents the general order of increasing free energy values at room temperature. The quantitative effects associated with hydrocarbon type, CH_2 increments, branching, etc., are evaluated with considerably greater accuracy than in the past, due mainly to the utilization of modern, highly reliable data for the heats of combustion involved.

●

Separation of the Aromatic Hydrocarbons, and the Isolation of n-Dodecane, Naphthalene, 1-Methylnaphthalene, and 2-Methylnaphthalene, From the Kerosene Fractions of Petroleum

By BEVERIDGE J. MAIR and ANTON J. STREIFF

This paper is the first report on the separation of the hydrocarbons in the kerosene fraction of petroleum, which investigation is being carried on as part of the work of the American Petroleum Institute Research Project 6. That part of the petroleum distilling between 114° and 144° C. at a pressure of 56 mm. Hg (corresponding approximately to 200° and 230° C. at 760 mm. Hg) was separated into a series of substantially constant boiling fractions. From the material distilling between 127° and 133° C. (at 56 mm. Hg), *n*-dodecane was isolated by crystallization. All of the material except the isolated *n*-dodecane was then subjected to a systematic extraction with reflux in a two-solvent process in order to separate the aromatic hydrocarbons from the paraffins and naphthenes. The "cleanup" of the traces of aromatic hydrocarbons was accomplished by absorption with silica gel. The aromatic fractions were then systematically distilled in fractionating columns of high efficiency. From the material boiling at 56 mm. Hg be-

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tween 127.0 and 127.5° C., 145 and 146.5° C., and 148.5° to 149.0° C., respectively, naphthalene, 2-methylnaphthalene, and 1-methylnaphthalene were isolated by fractional crystallization.

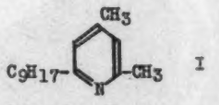
"Best" lots of each of the four hydrocarbons were prepared, with impurities estimated to be, in terms of mole fraction: *n*-dodecane, 0.0000±0.0006; naphthalene, 0.0006±0.0004; 1-methylnaphthalene, 0.0025 ± 0.0011; 2-methylnaphthalene, 0.0000 ± 0.0003. Values of certain physical properties of these four hydrocarbons, all extrapolated to material of 100 per cent were determined as follows:

Hydrocarbon—	*n*-Dodecane	Naphthalene	1-Methyl-naphthalene	2-Methyl-naphthalene
Boiling point at 760 mm. (°C.)	216.26±0.03	217.96±0.03	244.78±0.10	241.14±0.05
Freezing point in air (°C.)	−9.60±0.02	80.27±0.02	−30.77±0.06	34.44±0.02
Density at t° C. (g/ml.)	0.74512±0.00005	0.9752±0.0002	1.0163±0.0001	0.99045±0.00005
Refractive index at t° C. (n_D)	1.41951±0.00010	1.5898±0.0002	1.61494±0.00010	1.60192±0.00010
Refractive dispersion at t° C. ($n_F - n_C$)	0.00733±0.00010	0.0289±0.0002	0.02955±0.00010	0.02899±0.00010
Temperature of density, refractive index, and dispersion measurements (°C.)	25	85	25	40

Experimental proof for the structure of a $C_{20}H_{35}N$ base from California petroleum is submitted.

The Use of Ozonization in Structural Proof of Petroleum Bases. The Structure of A $C_{16}H_{25}N$ Base From California Petroleum

By BILLIE SHIVE and J. R. BAILEY
University of Texas, Austin, Tex.



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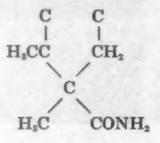
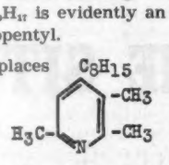
With ozone the base has been degraded to $C_9H_{17}CONH_2$, the -$CONH_2$ converted to -OH, and the alcohol dehydrated to two isomeric C_9H_{16} which on ozonization gave a diketone and a keto acid, respectively. This establishes for $C_9H_{17}CONH_2$ the grouping



and leaves two carbons and eight hydrogens unaccounted for. C_9H_{17} is evidently an alkylated cyclohexyl, or cyclopentyl.

Structure 1 replaces



provisionally advanced by Roberts and Bailey (Papers presented before the general meeting of the Petroleum Division, April 1939, Part II, V-1. Structural Study of a $C_{16}H_{25}$ Base from California Petroleum).

The $C_{10}H_{18}O_2$ acid corresponding to the $C_9H_{17}CONH_2$ amide has been recently isolated from a fraction of straightrun California naphthenic acids by Professor H. L. Lochte and J. T. Horeczy; thus proving a structural correlation between a naphthenic base and a naphthenic acid.

●

Aniline points and critical solution temperatures are useful physical constants of hydrocarbons for the correlation of data. A method is outlined which enables these constants to be obtained for volatile hydrocarbons. The aniline points of *n*-butane, isobutane, and isobutene were found to be 83.1°, 107.6° and 14.9° C., respectively, and the critical solution temperatures of these hydrocarbons were 84.1°, 109.0°, and 15.8° C., respectively. These values confirm the minima which are indicated by the literature for the several hydrocarbon series of which these various butane hydrocarbons are members.

Critical Solution Temperatures and Aniline Points of Some Butane Hydrocarbons

By CLIFFORD G. LUDEMAN
The Texas Co., Port Arthur, Tex.

●

A new type of packing embodying a continuous flat spiral of metal gauze enclosed between two concentric tubes is described. This packing gives very high efficiencies, 32 plates per foot or 0.375 in. H.E.T.P., exceeding the Stedman conical wire gauze packing. It is also characterized by large throughput without loss of efficiency, small holdup and small pressure drop. The performance is compared with a number of common types of packing, including the Stedman packing.

Spiral Screen Packing for Highly Efficient Laboratory Fractionating Columns

By H. S. LECKY and R. H. EWELL
Department of Chemistry, Purdue University, W. Lafayette, Ind.

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This paper presents the derivation of general absorption and stripping-factor equations. No assumptions are involved, and hence the equations are applicable to all cases of absorption and stripping. A simple rule is presented to estimate the knockout or stripping gradient from plate-to-plate, and two methods of calculating absorber performance are illustrated.

These methods of calculating absorber and stripper performance have been compared to plate-to-plate calculations. In spite of discrepancies on intermediate plates, good overall agreement was obtained between both methods and the plate-to-plate colculations.

Improved Calculation Methods of Absorber Performance and Design

By GEORGE HORTON and W. B. FRANKLIN
Technical Service Division, Humble Oil & Refining Co., Baytown, Tex.

●

Distillation curves have been calculated for representative cases of batch fractionation under various reflux ratios. Curves are given to show the relation between (1) reflux ratio and size of intermediate fraction, (2) effect of increase in number of plates on size of intermediate fraction for a typical distillation at finite reflux, (3) reflux ratio and purity of certain fractions of distillate, (4) curves calculated by use of theoretical plate concept and by transfer unit concept. The limitations of the calculations, and the several methods of calculations are discussed.

The Calculation of the Effect of Reflux Ratio in Batch Fractionation

By ARTHUR ROSE and H. H. LONG
School of Chemistry and Physics, Pennsylvania State College

●

The statistical methods for calculating thermodynamic functions of hydrocarbons are discussed. In addition to the more common methods which are suitable for the simpler molecules, a procedure is described which is especially suited to the complex hydrocarbons and our present incomplete knowledge of their molecular constants. Agreement is obtained with all experimental data for paraffins on the basis of reasonable rotation restricting barriers. There appear to be inconsistencies in the data for propylene, which render somewhat uncertain the values for the higher olefins.

Tables are presented which give the heat and free energy functions for all the paraffins through the heptanes, together with some discussion of estimates for the higher members. A few equilibrium constants and heats of reaction are calculated as examples of the use of this data.

Chemical Equilibria, Free Energies, and Heat Contents for Gaseous Hydrocarbons

By KENNTH S. PITZER
Department of Chemistry, University of California, Berkeley, Calif.

●

Representative hydrocarbons of all classes have been dehydrogenated over chromic oxide catalysts using identical reaction conditions. Cyclohexanes are converted to aromatics and hydrogen for extended periods without extensive formation of gaseous and residual byproducts. Paraffins are much less rapidly converted and the activity of the catalysts declines rapidly through deposition of elementary carbon. Olefins are more readily converted than paraffins, but the activity decline and carbon deposition are far more pronounced. Cyclopentanes are slowly dehydrogenated but closely resemble olefins in carbon deposition. Simple methylated aromatic hydrocarbons are unaffected but alkyl aromatics with longer sidechains, such as ethylbenzene, slowly dehydrogenate, giving tarlike byproducts which strongly poison the catalysts.

Catalytic Dehydrogenation of Representative Hydrocarbons

By ALEX G. OBLAD, ROBERT F. MARSCHNER and LLEWELYN HEARD
Standard Oil Co. (Indiana), Whiting, Ind.

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Humble to Install Three Cathodic Protection Units on Gas Line

Humble Oil & Refining Co. is planning to install, at an early date, three cathodic protection units on its 10-in. gas line between Tomball and Port Arthur, Tex.

One of these units will be located approximately 1,000 ft. south of the north end of the Eliza McGhee tract in the Josiah Harrell Survey, Harris County, Texas, which is also about 1.75 miles west and north of the San Jacinto River bridge on the Houston-Baytown highway (Market Street road).

Another unit will be on the L. P. Garrett tract in the Nathaniel Lynch Survey, Harris County, Texas, or about 2.25 miles east and south of the San Jacinto River bridge on the Houston-Baytown highway.

The other unit will be on Humble Oil & Refining Co.'s fee land, Lot 10, Block 4, of the Port Acres subdivision in the B.B.B.&C.R.R. Survey 384, Abstract 384, in Jefferson County, Texas.

THE DRAW WORKS IS THE KEY TO THE SITUATION

The draw works is the link between the prime mover and the rest of the rig. If the link lets go, what should have been a profitable drilling operation may wind up as a red-ink entry.

Right there you have the reason for the increasing use of Chrome-Molybdenum (SAE 4140) steel for draw works shafts – drum, jack and line.

This steel is strong and tough, and has high fatigue strength. The speed can be high, the load can be heavy, the starts fast and the stops sudden. Chrome-Molybdenum shafts will be right in there day after day taking whatever comes.

In both drilling and pumping operations this and other Molybdenum steels are serving economically and dependably. Our book, "Molybdenum Steels in Oil Production", which is sent free on request, gives complete technical data on Molybdenum steels that are successfully meeting modern oil field requirements.

PRODUCERS OF MOLYBDENUM BRIQUETTES, FERRO-MOLYBDENUM, AND CALCIUM MOLYBDATE

Clima[illegible] Company
500 Fi[illegible] New York City

MOLY

Progress in METALS

By W. L. NELSON

Nickel in the Petroleum Industry

THE following is part of the annual review of "The Nickel Industry in 1939," of the International Nickel Co.

"Outstanding in the production of oil has been the adoption of high strength nickel-copper steels for the rotary drill pipe. Because the high-speed turning force of the drill is transmitted from the turntable on the surface to the bit through the length of several thousand feet of drill pipe, high mechanical properties and corrosion resistance are important. For the massive drill collars and the long kelly bars driving the rotary tool, nickel-chromium steels find wide application.

"When the well is pumped, the polished rod working in the box at the top of the well is in many cases subjected to severe corrosion. Monel polished rods have proved especially serviceable in the West Texas and Kansas wells. Nickel-molybdenum and nickel steels are used for the majority of the alloy sucker rods.

"In the refining end, corrosion resistance is an important property. Nickel-chromium steel (18-8) is being increasingly used for liners where sulfur in the hot gases is the principal attacking agent, and monel where water is present. Monel-clad steel has lately been introduced for protecting refinery equipment operating below 500° F. In many cases liners, valves, and pistons of reciprocating pumps are made of Ni-Resist, an austenitic corrosion-resisting cast iron. This alloy is used for the casing and impeller of centrifugal pumps. The comparatively low cost of this material prompts its consideration where corrosive petroleum products are handled.

"The trend in refineries is toward increasingly lowered temperatures in fractionation of gases. In 1939, heat exchange equipment and fractionating columns were put in operation at temperatures approaching —200° F., utilizing low-carbon nickel steels, because they maintain satisfactory impact values at these temperatures."

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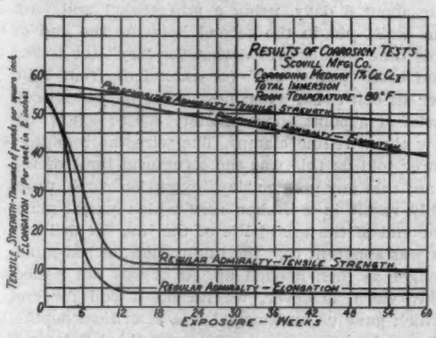
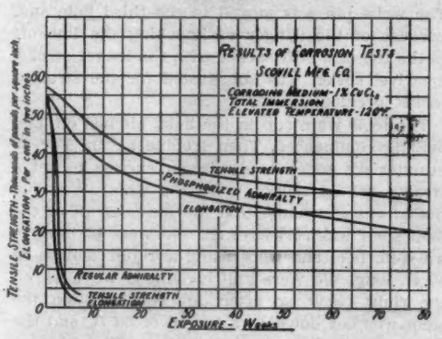
Phosphorized Admiralty Metal For Dezincification

TESTS and plant results in the use of phosphorized admiralty-metal condenser tubes for refinery service have recently been disclosed by the Scovill Manufacturing Co.

The success of admiralty metal in withstanding many types of condenser corrosion is well known but in some instances dezincification occurs. Red brass has been used to avoid this difficulty in refinery installations and arsenical copper in steam condensers, but both of these alloys are unsuitable for sour-vapor conditions or for service with brackish or salty water. Tests with phosphorized admiralty metal indicate that dezincification is prevented by the use of phosphorous and that other properties are not impaired. Laboratory results at 80° and 120° F. when the alloy is immersed in cuprous chloride solution are shown in the accompanying illustration. The degree of corrosion is indicated by the drop in tensile strength or elongation, rather than by attempting to measure the depths of isolated pits. Dezincification is an electrolytic type of corrosion and it is thought that the phosphorous provides protection by the formation of an impervious


RESULTS OF CORROSION TESTS
SCOVILL MFG. CO.
CORRODING MEDIUM 1% CuCl2
TOTAL IMMERSION
ROOM TEMPERATURE - 80° F.
PHOSPHORIZED ADMIRALTY - TENSILE STRENGTH
PHOSPHORIZED ADMIRALTY - ELONGATION
REGULAR ADMIRALTY - TENSILE STRENGTH
REGULAR ADMIRALTY - ELONGATION
TENSILE STRENGTH - Thousands of pounds per square inch.
ELONGATION - Per cent in 2 inches.
EXPOSURE - WEEKS



film of phosphorous compounds over the anodic area of the cell. The hardness and strength of the alloy is said to be equal to that of plain admiralty metal.

In over 60 known installations, no adverse criticism has arisen and many repeat orders have been given. About 80 per cent of the installations have been in oil refineries. "On the basis of performance, a major Gulf Coast refinery finds phosphorized admiralty and one other competitive admiralty equally acceptable to the exclusion of all other admiralties. The same plant (personnel) has expressed the belief that phosphorized admiralty compares favorably in length of service with 70-30 cupro nickel." If this belief is true, a great advancement in condenser materials has been made, because cupro nickel is an extremely resistant material and is relatively expensive. Phosphorized admiralty is no more expensive than the regular admiralty metal.

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Wrinkle Bending of Pipe

THIS old but little-used method of bending pipe is now receiving wide attention as a remarkably convenient and successful method of bending pipe through small angles of bend, as in laying pipe lines through wooded or hilly country. Details of the method are described in a new bulletin entitled, "Wrinkle Bending" by the Linde Air Products Co.

One side of the pipe is heated with a gas flame or oxyacetylene torch to such a temperature that it can be bent by hand, or in the case of large pipe, by means of a bending rig. An angle of 5°-7° can be produced at each bend without undue buckling. Thus, five or six bends are required to make a total angle of 30°. The wrinkle occurs on the inside of the bend, and hence the streamline flow of the fluid is not greatly molested by the bend. About 3 minutes is required to produce a single 6° bend in pipe that is smaller in diameter than 6 in. Any size of pipe can be successfully handled.

The pipe wall is not thinned at the bend, in fact it is thickened slightly by compression. Stresses are not created in the pipe as in cold bending because the metal is free to adjust itself at the high temperature.

●

Selection of Casing

The bulletin entitled "Smith Casing" of the A. O. Smith Co., Milwaukee, Wis., is a valuable aid in selecting the size, weight and grade of casing. Such factors as collapse pressure, setting depth, pullout load for joints and maximum allowable compressive strength are discussed in detail and are illustrated with numerous curves and tables.

The last half of the bulletin (22 pages) is devoted to curves, tables and specifications covering each common size of casing. By means of these data, it is possible to select the proper size, weight and grade of casing, in a few moments.

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Conversion of Hardness Numbers On Steels and Carbides

Abstract: Scott & Gray, Hardness Conversion Relations for Hardened Steels—Preprint Am. Soc. Metals, Oct. 1939, 18 pages. Abstract taken from Metals & Alloys, December 1939.

Data compilation.—Reliable conversion relations between Rockwell and diamond-pyramid hardness-test values can be obtained on heat-treated steels independent of composition. Hardness conversion tables for the major hardness tests were therefore prepared from the best available data and some new data presented here. A simple empirical equation expresses accurately the relation between Rockwell C and diamond-pyramid-test values on steels. With change of a single constant the same equation gives equally well the same relation for sintered carbides. By adding a term to this equation for elastic modulus, the new constants were evaluated from the observations on steel and sintered carbides. Values then calculated for metals of low elastic modulus, copper and aluminum alloys, agreed very well with a few experimental observations. The information presented here fully justifies the use of a single reference scale of hardness for reporting all penetration hardness-test values no matter which testing instrument of the kinds considered (Vickers, Rockwell, Scleroscope, Monotron, Brinell) is used.

The following highly skeletonized table is taken from the complete table in the original paper:

Diamond pyramid hardness	Rockwell hardness C	A	Sup. 30-N	Sclero-scope	Mono-tron	Brinell
1,000	69.9	86.5	85.9	101	113	...
900	67.4	85.2	83.9	94.5	102	...
800	64.1	83.5	81.0	87.5	92	...
700	59.6	81.0	77.2	80.5	81	612
600	54.5	78.3	72.6	73.0	71	553
500	48.5	75.0	67.1	65.5	60.5	473
400	40.5	70.9	59.9	56.0	50	386
300	29.5	65.2	50.0	45.0	38.5	294 (T-8)

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Metallurgical Terms

Types of Welded Joints

The following definitions are taken from A.P.I. Code No. 28: *"Butt Weld"*—(1) In making some tube or pipe, the abutted edges of the skelp are welded together by pressure of rolls at a welding heat. The product is known as butt-welded pipe.

"(2) In the fabrication of pressure vessels, structural frames, and other equipment by welding, any weld between the abutted edges of the structural members or plates is also known as butt weld.

"Lap Weld"—(1) In making some tube or pipe, the edges of the skelp are beveled or scarfed so that when they are overlapped they can be welded together. The product is known as lap weld or lap-welded pipe.

"(2) Welds made along the edges of overlapped plates or structural frames, etc., are also known as lap welds."

Deep Cable-Tool Drilling In Appalachian District

By J. A. FOX
Foley & Fox, Drilling Contractors, Washington, Pa.

J. A. FOX

A. P. I.

Presented before eastern district meeting at Columbus, Ohio, April 11-12, 1940

THERE are a host of unsolved problems in connection with cable-tool drilling to depths greater than 5,000 ft. in the Appalachian district. All of these merit the careful attention of operators and contractors alike. Two of them, however, are just at this time particularly important. The problem of improving drilling technique to achieve a longer working life for wire drilling cables is placed first because the cost of wire lines is one of the largest items of expense chargeable to deep wells. Second is the problem of devising a means of overcoming the disastrous and expensive effects of the gas blowouts which are encountered in several parts of the Appalachian area through a zone beginning approximately 300 to 500 ft. above the top of the Onondaga lime.

Our firm has attacked these problems experimentally and perhaps the most effective presentation I can employ will be a discussion of our own experiences, together with the practical and admittedly untheoretical conclusions we have drawn therefrom.

Wire Drilling Cables

Our experience indicates that the life of wire drilling cables can be materially extended by drastically reducing the total weight of the tools and, at the same time, lengthening the drilling stroke. The weight of the tools is reduced by shortening the stem (or bar) below conventional lengths.

We have found that this procedure demands the use of swivel sockets instead of straight, or stiff, sockets for maintenance of proper reaction of the tools during drilling. Among other advantages, the use of swivel sockets in the drilling of these deep wells has enabled us to keep holes straighter, has reduced friction against the wall of the hole and consequent line abrasion and line cutting of casing, and has speeded up drilling time. At first we had a little difficulty in training our drillers in the use of swivel sockets, but now that the drillers are accustomed to their use I believe we would encounter much more dissatisfaction if we discontinued their use than we did when we adopted them.

We have found it very difficult to run swivel sockets at depths greater than 5,000 ft. with the wrist pin in the second hole on the crank. By running with the wrist pin in the third hole, however, we have been able to drill without trouble or inconvenience to depths as great as 8,159 ft. We do not know to what maximum depth this hookup will work satisfactorily, since our experience does not extend beyond the depth given above.

In this connection it should be noted that we use standard A.P.I. 6-in. rig irons. The "lift" on the drilling string is therefore 34 in. with the wrist pin in the second hole and 44 in. with the wrist pin the third hole.

Our first attempt to lengthen the stroke on a deep well by putting the wrist pin in the third hole was on a well in Columbiana County, Ohio. The depth of the hole at the time was 6,000 ft., its diameter 8 in., and the objective was the Clinton sand which was expected at approximately 6,500 ft. We had installed a new 7,500-ft., 1-in., 6 by 21 improved plow-steel line and had run it for about 6 days, using a stiff socket and with the wrist pin in the second hole. At the end of this time we discovered that the "lay" (or twist) had been "pulled out" (or extended) from 6 in. per six-coil twist, when new, to 12 in. per six-coil twist at a point approximately 300 to 500 ft. below the wire-line clamps. The wire-line manufacturer told us this was the structural limit of the line; that any greater "lay" extension would probably result in a broken core which would mark the end of the useful life of the line for drilling. It was apparent that the line would not last much longer as then hooked up. As it was not noticeably worn, however, we turned it end for end which gave us undamaged line at critical depths. The wrist pin was moved to the third hole and, because of the danger of knocking the line off at the top of a stiff socket with the longer stroke, a swivel socket was substituted for the straight socket previously used.

The tools were run in the hole, hitched on, and drilling commenced. Then trouble began. For 30 minutes we endeavored without success to get a steady drilling motion with the tools. We then pulled out and found that the lower 20 ft. of the drill stem was corkscrewed. We were drilling in a 6⅛-in. hole and were using a 4½-in. drill stem 45 ft. long. We were still convinced we were on the right track, so after due consideration the stem was cut down to a length of 30 ft. and the tools were again run. This time the tools ran with a steady drilling motion and everything worked smoothly. After an hour they were pulled out of the hole, minus the bit. The pin had been jumped. The bit was recovered with a friction socket.

In our experimenting to determine the proper weight of tools to use in drilling at this depth, the company for which we were drilling gave us their fullest cooperation, and their confidence gave us the encouragement we needed at this critical time.

The length of the stem was reduced to 25 ft., and, to our joy and relief, this eliminated all our wire-line trouble arising from functional causes not only on the well in question but on subsequent wells. This particular well was finished at 6,500 ft. with the same drilling cable. To anyone familiar with the history of deep drilling with cable tools in the Appalachian district the enormous saving in wire-line costs is immediately apparent.

We have also discovered that, with the hookup described, a more effective blow is delivered at the bottom of the hole by the tools and consequently more hole is made in a given length of time than is the case where a long stem and a stiff socket is used with the shorter stroke when the wrist pin is in the second hole on the crank.

We are now satisfied that, at depths in excess of 7,000 ft., the improved plow-steel preformed wire drilling cable is a superior line. The first cost of this line is, of course, greater than that of unpreformed lines, but considerably more than the difference in first cost will be saved over the life of the line at depths greater than 7,000 ft. The preformed line is a stiffer line when hitched to the walking beam because every one of the six strands (each of which is composed of 21 wires) is preformed to its ultimate position in the line. The strands, therefore, have no twist, and resist the tendency of the "lay" to straighten, or "pull out," on long suspensions. An additional advantage of this greater stiffness in a preformed line arises from a reduction in the length of the stroke made by the tools at depths of 7,000 ft. and more. This feature enables the driller to maintain more effectively the proper drilling hitch at these depths since the "feel" of the tools on a preformed line at 7,000 ft. is about the same as the "feel" of the tools on an unpreformed line at approximately 4,500 ft.

Gas Blowouts

Let us now consider gas blowouts. I believe that anyone who has had experience with these will agree that they constitute the most difficult, exasperating, discouraging, and expensive single problem to be contended with in the drilling of deep wells in the Appalachian district. Fortunately they are not encountered in all deep wells in the area. They are sufficiently frequent, however, to be rated as a major menace. When I think of the times I have stayed on the job days and nights on end, cutting the drilling line or whipping it off on top of the tools, drilling by the tools and fishing them out, then making 2 or 3 ft. of hole only to have the same thing happen again, I can really speak with considerable feeling and not a little heat on the subject. The sensation of impotent helplessness under these circumstances is almost indescribable.

We firmly believe, however, that we have evolved a practical formula, not for staying away from the blowouts themselves, but for avoiding their usually disastrous effects.

These blowouts appear to be pockets of gas of small volume, but under very high pressure. When one of these pockets is encountered the effects are comparable to those resulting from an explosion; material is loosened from the sides and bottom of the hole and the tools and drilling line are thrown up the hole for distances varying with the initial pressure of the gas in the pocket. The volume of the gas in the pocket is so small that sufficient pressure is not maintained for the length of time required to eject the tools from the hole. The tools, therefore, fall back to bottom

as the pressure declines and the cavings, being lighter than the tools, follow the tools back to the bottom of the hole packing around and on top of them which, in most instances, precludes their recovery by any means short of whipping off or cutting the drilling line, drilling by and fishing out.

These blowouts for the most part occur in the Devonian shale section above the Onondaga lime. We have found that there are certain criteria which are usually encountered immediately above these gas pockets once that part of the section has been reached where they may be expected. Five or 10 ft., or even less, above one of these gas pockets, the driller, if he is watching carefully, will notice a very little gas on top of the bailer as it comes out of the hole. A little below the point where this gas entered the bailer a hard shell will slow up the progress of drilling, sometimes almost holding it up altogether for as much as 5 minutes. Then is the time to watch out! Just below such hard caps lie the gas pockets which yield the blowouts. Not all of these hard shells cap gas pockets, but all the gas pockets lie immediately below hard shells so it is necessary to watch them all.

Our first experience with gas blowouts was on a well in Hancock County in the Panhandle of West Virginia, where we had 11 major blowouts of an intensity sufficient to cause us trouble, and 13 smaller ones which caused us no damage or delay. The first one was encountered at a depth of 4,575 ft., and the last one at a depth of 4,750 ft., just 2 ft. above the top of the Onondaga lime. After each blowout the hole was filled with cement throughout the area affected and redrilled. Thus all wall caves were filled with cement. It required about 1 month to drill this 175 ft. through the zone of gas blowouts and, as a matter of fact, we were fortunate to accomplish the job in so short a time under the existing conditions. The number of fishing jobs developed and the enormous footage of ruined wire drilling line made this portion of the operation expensive indeed.

Experience on Columbiana County Well

Following the completion of this well we drilled the Clinton sand well in Columbiana County, Ohio, previous discussed in connection with the wireline problem. Some 1,400 ft. below the bottom of the Oriskany sand and at a depth of 5,885 ft., we reached the Newburg sand which yielded a hole full of water. The water, of course, covered the Devonian shales above the Onondaga lime. These shales had always caved badly when wet and we fully expected trouble as a consequence. Imagine our gratified surprise when we failed to detect any caving whatever while we continued to drill with this hole full of water. Just above the Newburg sand we had drilled through 75 ft. of solid salt. As a result the Newburg water in the hole quickly became a concentrated brine. The thought occurred to me that if the shales did not cave with salt water in the hole then the troublesome effects arising from gas blowouts should be minimized under similar conditions.

The next well we drilled was in Beaver City, Pennsylvania, and as deep wells drilled earlier in the vicinity had encountered gas blowouts we knew what to expect. When this well reached what is locally known as the brown-shale section where blowouts had occurred in other wells, approximately 1,200 ft. of salt water was put in the hole and drilling resumed. For about 75 ft. everything went fine. In that distance there were three gas blowouts, but no delay or trouble resulted. After we had drilled this 75 ft., however, we were unable to make any new hole in spite of the fact that the tools drilled with a proper motion. We were so well satisfied with the manner in which the salt water had held down the force of the gas blowouts that one whole week was spent in trying to drill ahead without unloading the hole of its salt water. The net result was not to exceed 25 ft. of new hole.

Reluctantly we bailed the salt water out of the hole, and resumed drilling with only enough water in the hole to keep the cuttings off the bottom while drilling was in progress. We did try to step up the speed with which we got the tools off bottom after a blowout. We put on crews of three, instead of two, and materially increased the speed with which the bull ropes were "kicked on" and the tools raised out of the zone where cavings tended to pack. Even so from 50 to 75 ft. frequently had to be cut from the drilling cable which had been kicked when the tools were blown up the hole and after each blowout it was necessary to clean out from 10 to 30 ft. of cavings from the bottom of the hole. We must have saved ourselves several fishing jobs in this manner and hence reached the top of the Onondaga lime with less than the usual amount of inconvenience.

Drill Without Salt Water in Hole

The next well was drilled at a nearby location. It was drilled employing standard time-honored practices and without the use of salt water in the hole. I will not bore you with a recital of the troubles resulting from gas blowouts, but they were numerous and expensive.

In salt-water drilling fluid we were certain that we had a potentially effective method of overcoming difficulties arising from gas blowouts if only we could discover the proper method for using it.

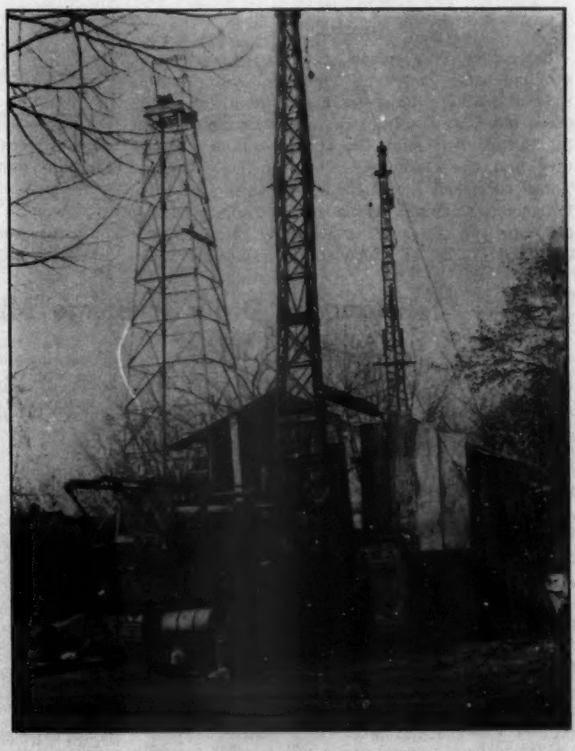
A short time later we started a third well in the same vicinity. We encountered the first gas blowout at a depth of 4,500 ft. As a result of quick action on the derrick floor, possibly coupled with the fact that the blowout was not an excessively violent one, the only delay suffered was the time required to clean out about 15 ft. of cavings in the bottom of the hole. Two feet deeper we had another, and more violent, gas blowout. This time we had to cut the drilling line, drill by the tools and fish them out.

Several nearby gas wells were making small amounts of concentrated brine from the Oriskany sand. At this point we collected and hauled to our drilling well about 110 bbl. of this brine. We dumped eight bailers thereof into the hole which filled it up to a point about 160 ft. off bottom. After each run of about 10 ft. we would run the bailer to bottom and take out one bailer of mud and cuttings. We would then filled it up to a point about 100 ft. it on bottom. In this manner we removed from the lower part of the fluid column that portion of it carrying the heaviest proportion of sand pumpings or sludge and left behind that portion of the fluid relatively free from sand pumpings. In addition we were at the same time adding clear brine free from sand pumpings which, we conceived, would serve to maintain the consistency of the fluid at about the same point all the time. This procedure, which is termed "changing off," reduced the harmful results of gas blowouts to zero. It was found, however, that at the end of 2 days the entire fluid column was getting quite muddy and too sticky at the bottom to permit the bit to make satisfactory progress, and also the walls of the hole began to cave. All the fluid was bailed out of the hole, the cave was cemented, the cement was drilled out at the end of 3 hours, fresh brine was put in and in this manner the well was completed to the Onondaga lime without further trouble from gas blowouts, although five more were encountered.

It was apparent that we were leaving the salt water in the hole too long before bailing it out. Not only was the entire column of fluid acquiring too large a content of mud over a period of 48 hours, but we discovered also that within about 24 hours the salt water would be almost fresh. At the depths at which the gas blowouts occur in these wells in southwestern Pennsylvania and immediately adjacent areas the temperature is roughly 140° F. Our deduction therefore is that the heat causes the salt in the brine to be precipitated, over a period of 24 hours, in the irregularly shaped indentations and crevices in the walls of the hole. It may be that if this actually occurs it is partially responsible for the reduction in the amount of caving that takes place in the shale. So far, however, we have been afraid not to cement the hole where caves occur.

As a consequence of these observations and deductions we varied the procedure on our next well, which was in Butler County, Pennsylvania, with entirely satisfactory results. The first blowout was encountered at 5,053 ft. and the last at 5,278 ft. The use of salt water was purposely delayed until after the first blowout had been encountered. We wanted to know whether or not the well was in an area where blowouts of considerable violence were assured, since our objective was to find out definitely whether or not a column of a few hundred feet of salt water carried in the hole while drilling was in progress would solve the difficulties arising from gas blowouts. The first blowout answered the question. It merited a Grade A classification although no fishing job was entailed. It has been our custom to carry an 8-in. hole at least to the top of the Onondaga lime. Prior to reaching the blowout depth we had taken the precaution of stringing up the 8-in.

(Continued on Page 65)



Cable-tool drilling still accounts for a large number of wells drilled annually in the eastern United States

Mid-Continent Refinery Crude Runs Advance in April

ALTHOUGH an equal number of states or districts in the Mid-Continent area show a decrease in daily crude runs for April, they are more than offset by those refineries increasing crude runs. The total of 537,545 bbl. scheduled to be run daily during April is 5,900 bbl. greater than March's total of 531,645 bbl. Greatest gains were reported for Arkansas and East Texas.

Oklahoma

Oklahoma crude runs to stills are up 900 bbl. daily compared with last month, with an estimated schedule of 159,500 bbl. throughput per day. The Bell Oil & Gas Co. plant at Granfield; Continental Oil Co., Ponca City; Phillips Petroleum Co., Okmulgee, and the Rock Island plant at Beckett all have reported higher crude runs than for the previous month. Wilcox Refining Division at Bristow has cut daily crude runs from 4,500 bbl. to 3,500 bbl.; other plants in the state showing no changes over last month.

Arkansas

Arkansas refineries have made notable increases in daily crude schedules with 28,900 bbl. reported for April, compared with 21,700 bbl. during March. Lion Oil Refining Co.'s plant at El Dorado is running near capacity with 15,000 bbl. being processed daily, an increase of 5,000 bbl. over last month. The Root Refining Co. at El Dorado accounts for the balance of the increase in crude runs with 7,500 bbl. being run in April compared with 5,300 bbl. in March.

Kansas

Estimated daily crude runs in Kansas have dropped some 2,000 bbl. compared with March. Several refiners have increased their runs but these have been more than offset by reductions by Phillips Petroleum Co. at its plant at Kansas City and the Derby Oil Co. plant at Wichita. Those refineries increasing crude runs are: Bay Petroleum Co., McPherson, from 2,500 to 3,200 bbl., and the Globe Oil & Refining Co., McPherson, from 15,000 to 16,000 bbl. Total crude runs for the month were estimated to be 135,050 bbl., compared with 137,100 bbl. in March.

Mid-Continent Crude Runs

Average Daily (Barrels)

(Advance estimate compiled by The Oil and Gas Journal)

	1938	1939	1940
January	529,710	503,405	532,085
February	507,985	494,910	526,785
March	491,935	497,180	531,645
April	532,120	523,535	537,545
May	527,315	534,535	.....
June	540,005	541,090	.....
July	557,520	550,755	.....
August	554,810	556,095	.....
September	555,695	550,830	.....
October	531,325	547,725	.....
November	524,035	537,375	.....
December	503,530	527,230	.....

Operations by Refinery District

Daily crude runs

	April	March	Incr.
Arkansas	28,900	21,700	7,200
East Texas	40,400	36,400	4,000
Kansas	135,050	137,100	*2,050
N. Central Texas	38,150	38,945	*795
North Louisiana	36,375	38,950	*2,575
Oklahoma	159,500	158,600	900
Southwest Texas	16,750	16,700	50
W. Texas Panhandle	82,420	83,250	*830
Total	537,545	531,645	5,900

*Decrease.

East Texas

In the East Texas area daily crude runs are estimated to be 40,400 bbl., an increase of 4,000 bbl. compared with March. Model Oil & Refining Co., Kilgore, which has been shut down for some time, is again on stream and running to capacity with 2,000 bbl. daily scheduled for April. McMurrey Refining Co., Tyler, reports an increase of 1,600 bbl. daily with 4,000 bbl. per day being run to stills. The Talco Asphalt & Refining Co. at Mount Pleasant has also increased operations with a gain of 1,000 bbl. daily over its 5,000-bbl. schedule in March. The former M. M. Travis, Inc., refinery at Kilgore, which was previously operated as the Southport Petroleum Co., has been purchased by Natham Lynch. The plant is now listed as Lynch Refining Co.'s No. 2 to distinguish it from the No. 1 plant leased from Roger Lacy.

West Texas and Panhandle

In the West Texas and Panhandle area estimated daily crude runs totaled 82,420 bbl. for April, compared with 83,250 bbl. in March. The Moutray Oil Co. plant reduced its crude runs as did the Onyx Refining Corp., both plants located at Hawley, accounting for the greater share of the decrease in crude runs this month. Daily crude runs of other refineries are reported to be unchanged.

North Central Texas

North Central Texas refiners have reduced their crude runs to stills by 795 bbl. daily, in estimates submitted by individual plants. The W. T. Waggoner estate, Vernon, cut back crude runs 1,500 bbl. daily compared with March. Panhandle Refining Co. at Wichita Falls; La Salle Petroleum Corp., Burkburnett, and the Continental Oil Co. at Wichita Falls have all made substantial reductions in their April operations. Those plants showing an increase in crude runs are: Olney Oil & Refining Co., North Olney; Ohio Oil Co., Fort Worth; Magnolia Petroleum Co., Fort Worth; Baird Refining Co., Baird, and the Coleman Refining Co., at Coleman, which reports 1,800 bbl. being processed daily compared with 400 bbl. in March. The total crude runs for this area were estimated to be 38,150 bbl.

Estimated Daily Average Mid-Continent Refinery Crude Runs for April

OKLAHOMA

Company and location—	Daily capacity	Av. dly. runs April	Av. dly. runs March
Anderson-Prichard Ref. Corp., Cyril	8,000	6,500	6,500
Barnsdall Ref. Corp., Barnsdall	5,000	4,000	4,000
Bell Oil & Gas Co., Granfield	4,500	3,000	2,500
Ben Franklin Ref. Co., Ardmore	6,000	3,750	4,000
Black Gold Ref. Co., Oklahoma City	2,500	2,000	2,000
Champlin Ref. Co., Enid	16,000	15,000	15,000
Cities Service Oil Co., Okmulgee	4,000	(*)	(*)
Cities Service Oil Co., Ponca City	12,000	10,000	10,000
Continental Oil Co., Ponca City	28,000	23,750	22,500
Cushing Ref. & Gasoline Co., Cushing	4,200	3,500	3,500
Deep Rock Oil Corp., Cushing	10,000	9,000	9,000
Johnson Oil Ref. Co., Cleveland	6,000	3,500	3,500
Mid-Continent Pet. Corp., West Tulsa	35,000	21,000	21,000
Ohio Oil Co., Bristow	5,000	2,500	2,500
Omar Ref. Co., Garber	5,000	(*)	(*)
Phillips Pet. Co., Okmulgee	6,000	5,800	5,600
Peppers Gasoline Co., Oklahoma City	500	400	400
Rock Island Ref. Co., Beckett	7,500	6,200	6,000
Sinclair Ref. Co., Sand Springs	6,000	5,600	5,600
Sun Oil Co., Yale	5,000	1,500	1,500
Sunray Oil Co., Allen	7,000	4,000	4,000
Texas Co., West Tulsa	16,000	15,000	15,000
Tide Water Oil Co., Drumright	12,000	10,000	10,000
Wilcox Ref. Division, Bristow	5,000	3,500	4,500
Total	216,200	159,500	158,600

*Shut down.

ARKANSAS

Company and location—	Daily capacity	Av. dly. runs April	Av. dly. runs March
Berry Asphalt Co., Waterloo	2,000	1,200	1,200
Henry H. Cross, Smackover	6,000	3,000	3,000
Lion Oil Ref. Co., El Dorado	17,000	15,000	10,000
Macmillan Pet. Corp., Norphlet	2,500	2,000	2,000
Root Ref. Co., El Dorado	10,000	7,500	5,300
Stephens Ref. Co., Stephens	700	200	200
Total	38,200	28,900	21,700

NORTH LOUISIANA

Company and location—	Daily capacity	Av. dly. runs April	Av. dly. runs March
Arkansas Fuel Oil Co., Bossier City	23,000	16,000	18,000
Atlas Pipe Line Co., Shreveport	12,500	6,000	6,000
Bayou State Oil Corp., Hosston	750	800	800
Pennant Ref. Co., Princeton	750	500	500
Premier Oil Ref. Co. of Texas, Cotton Valley	3,500	2,750	2,850
Rodessa Oil & Ref. Corp., Cedar Grove	12,000	8,000	8,500
Stanolind Oil & Gas Co., Superior	5,000	2,325	2,300
Texas Co., Shreveport	7,000	(*)	(*)
Total	64,500	36,375	38,950

*Shut down.

KANSAS

Company and location—	Daily capacity	Av. dly. runs April	Av. dly. runs March
Anco Ref. Co., Garnett	500	350	350
Barnsdall Ref. Co., Wichita	5,000	5,000	5,000
Bay Pet. Co., McPherson	4,000	3,200	2,500
Chanute Ref. Co., Chanute	1,000	600	600
Derby Oil Co., Wichita	8,000	5,500	7,000
El Dorado Ref. Co., Eldorado	5,000	4,000	4,000
Falcon Ref. Co., Inc., Great Bend	2,500	1,800	1,800
Globe Oil & Ref. Co., McPherson	15,000	16,000	15,000
Kanotex Ref. Co., Arkansas City	12,000	5,500	5,500
National Ref. Co., Coffeyville	8,000	4,200	4,200
Pet. Products Co., Chanute	1,250	1,000	1,000
Phillips Pet. Co., Kansas City	23,000	16,650	19,300
Roper Pet. Co., Parsons	750	(*)	150
Shallow Water Ref. Co., Scott City	2,000	1,500	1,500
Sinclair Ref. Co., Coffeyville	12,000	9,500	9,500

Company and location—	Daily capacity	Av. dly. runs April	Av. dly. runs March
Sinclair Ref. Co., Argentine	11,000	9,250	9,200
Skelly Oil Co., Eldorado	23,000	20,500	20,500
Socony-Vacuum Oil Co., Inc., Augusta	23,000	20,000	20,000
Standard Oil Co., (Indiana), Neodesha	7,500	7,000	7,000
Vickers Pet. Co., Potwin	4,000	3,500	3,000
Total	168,500	135,050	137,100

*Shut down.

EAST TEXAS

Beacon Oil & Ref. Co., Henderson	4,500	(*)	(*)
Danciger Refs., Inc., Longview	6,000	(*)	(*)
East Texas Ref. Corp., Longview	6,000	3,500	3,500
Gladewater Ref. Co., Gladewater	3,000	2,000	2,000
Hurricane Pet. Corp., Overton	5,000	3,000	3,000
Hurricane Pet. Corp., Arp.	3,300	(*)	(*)
Independent Ref. Co., Arp	3,500	2,000	2,000
Lynch Ref. Co. No. 1, Kilgore	3,000	2,300	2,000
Lynch Ref. Co. No. 2, Kilgore	4,000	1,600	2,500
Magnolia Pet. Co., Corsicana	5,000	3,500	3,500
McMurrey Ref. Co., Tyler	10,000	4,000	2,400
Model Oil & Ref. Co., Kilgore	2,000	2,000	(*)
Premier Oil Ref. of Texas, Greggtown	4,000	3,000	3,000
Talco Asphalt & Ref. Co., Mount Pleasant	8,000	6,000	5,000
Texas Co., Dallas	16,000	7,500	7,500
Tower Ref. Co., Overton	3,500	(*)	(*)
Total	86,800	40,400	36,400

*Shut down.

NORTH CENTRAL TEXAS

Baird Refining Co., Baird	1,500	950	900
Bryson Pipe Line & Refining Co., Bryson	2,000	1,000	1,000
Bryson Ref. Co., Inc., Bryson	1,500	(*)	(*)
Coleman Ref. Co., Coleman	2,000	1,800	400
Continental Oil Co., Wichita Falls	6,000	4,850	6,000
Cosden Pet. Corp., Graham	2,000	1,200	1,200
Falls Ref. Co., Wichita Falls	2,500	400	400
Gratex Ref. Co., Graham	500	300	300
Gulf Oil Corp., Fort Worth	8,000	6,500	6,500
Hightower Oil & Ref. Corp., Brownwood	750	(*)	(*)
Jacksboro Ref. Co., Jacksboro	400	100	100
La Salle Pet. Corp., Burkburnett	3,500	1,000	1,200
Magnolia Pet. Co., Fort Worth	7,500	5,750	5,500
Muenster Ref. Co., Muenster	1,800	800	800
North Texas Ref. Co., Gainesville	1,000	600	600
Ohio Oil Co., Fort Worth	5,000	3,750	3,700
Olney Oil & Ref. Co., North Olney	3,500	2,000	1,200
Panhandle Ref. Co., Wichita Falls	4,200	2,000	2,500
Panhandle Ref. Co., Lueders	1,500	875	875
Southland Ref. Co., Olney	500	200	200
Taylor Ref. Co., Taylor	1,000	600	600
Texas Pacific Coal & Oil Co., Caddo	800	450	450
Tucker Oil Co., Burkburnett	250	25	20
Tydal Ref. Co,, Gainesville	2,000	(*)	(*)
W. T. Waggoner est., Vernon	5,000	3,000	4,500
Total	63,700	38,150	38,945

*Shut down.

SOUTHWEST TEXAS

Border Oil & Ref. Co., Sullivan City	1,000	500	500
Eggleston Oil Products Co., Three Rivers	1,000	750	750
Humble Oil & Ref. Co., San Antonio	5,000	3,500	3,500
Magnolia Pet. Co., Luling	8,000	4,500	4,600
Pettus Oil & Ref. Co., Pettus	1,000	850	950
Phoenix Ref. Co., San Antonio	2,000	1,000	1,000
Phoenix Ref. Co., Pettus	900	650	650
Pioneer Oil & Ref. Co., Somerset	2,000	750	750
Rado Ref. & Prod. Co., McAllen	800	500	450
Texas Co., San Antonio	5,000	3,750	3,550
Total	26,700	16,750	16,700

WEST TEXAS AND PANHANDLE

Aero Gas & Ref. Co., Fort Stockton	350	100	100
Coltex Ref. Co., Colorado	12,500	8,000	8,000
Cosden Oil Co., Big Spring	12,500	10,000	10,000
Danciger Refs., Inc., Pampa	6,500	5,000	5,000
Danube Oil Corp., Borger	800	400	400
Petrol Ref. Co., Lubbock	500	(*)	(*)
Gulf Oil Corp., Sweetwater	7,000	6,200	6,200
Howard County Ref. Co., Big Spring	2,000	600	600
Motor Fuels Corp., Levelland	4,000	3,000	3,000
Moutray Oil Co., Hawley	1,200	700	950
Onyx Ref. Corp., Hawley	3,000	400	1,800
Payward Ref. Co., Shamrock	1,000	420	500
Phillips Pet. Co., Borger	35,000	28,000	27,100
Post Refining Co., Rotan	800	350	350
Shamrock Oil & Gas Corp., Sunray	3,000	1,500	1,500
Shamrock Oil & Gas Corp., Lefors	1,600	850	850
Stamford Ref. Co., Stamford	450	300	300
Standard Oil Co. of Texas, El Paso	14,000	9,000	9,000
Star Light Ref. Co., Ballinger	1,000	500	500
Texas Co., El Paso	2,000	1,500	1,500
Texas Co., Amarillo	6,000	4,000	4,000
Western Ref. Co., Fort Stockton	1,000	800	800
Wickett Pet. Co., Wickett	3,500	800	800
Total	119,700	82,420	83,250

*Shut down.

Deep Cable-Tool Drilling in Appalachian District

(Continued from Page 63)

tools with a 4½-in. stem 40 ft. long, using 3¾-in. joints. This was done in order to increase the clearance between the tools and the wall of the hole and to raise the rope socket above the top of the usual cavings' pack if possible. Furthermore, once the use of a column of salt water had been started, the heavier, longer string should enable the tools to run with a much steadier motion and to make hole more effectivelv

When the hole had been cleaned out following the first gas blowout 10 bailers of brine, as highly concentrated with salt as we could get it, were dumped into the hole and drilling was resumed. As on the next previous well we "changed off" with the bailer after every 10 ft. of hole was made. This time, however, all the fluid was bailed out of the hole every 24 hours instead of every 48 hours, the hole was then cemented, drilled out after 3 hours' setting time, 200 ft. of new brine was dumped, and drilling proceeded as before. Strange as it may seem, we were able, employing this technique, to average 50 ft. of new hole every 24 hours.

On this well there were nine large gas blowouts. When one was encountered the engine, having load relieved, would speed up. The first few times we would pull out after each such event and look tools and line over carefully to determine whether or not any damage had been done to either and also to make sure we got the tools off bottom before a cavings' pack accumulated at the bottom of the hole. Time after time, however, we found that no damage to tools or line occurred, and that the tools seemed to stay above what cavings did pack into the bottom of the hole, so we ceased even to pull the tools out of the hole after a gas blowout. We simply took a new hitch on the drilling line to take up the slack and resumed drilling.

Whatever may be the proper explanation, it seems as though most of the material in the cavings' pack which accumulates in the bottom of the hole after a gas blowout comes from the bottom of the hole rather than from the walls higher up and that, with the salt water in the hole, these cavings simply push the tools ahead of themselves up the hole so that when the force of the blowout is expended and all the material in the hole settles back to bottom the tools come to rest on top of the cavings' pack. The column of salt water seems effectively to damp out a major portion of the initial explosive force of these blowouts.

We have found that by using a column of salt water of about the height given (200 ft.) we can make just as good time (and in some instances better time) drilling through the zone of gas blowouts as we can in the shales above that zone where we carry only enough water in the hole to keep the cuttings mixed. We believe, however, that at depths of 6,000 ft. or better it would be wise to increase the height of the column of salt water by 100 to 150 ft. It seems logical to expect higher initial pressures in these gas pockets at greater depths, although this point may be debatable.

Our experience with the method here described has now convinced us that the zone of gas blowouts in these Appalachian deep wells can be drilled in this manner without serious difficulty arising from the blowouts themselves. On the last well discussed above, in which there were nine major gas blowouts in 225 ft., that footage was drilled in 5 days which included all the cementing and redrilling which was done—really a total of 450 ft. of hole drilled. I doubt that it is reasonable to expect a better record under any conditions with standard tools, at depths greater than 5,000 ft.

More often than not it is difficult to find a source of concentrated brine in sufficient quantity near a drilling well. Even where some brine occurs in nearby wells it is usually not produced in sufficient quantities to make this source of supply either dependable or cheap. We have found it cheaper and more convenient from every standpoint to purchase granulated salt in 100-lb. bags mixing this with fresh water in a 7-in. bailer 30 ft. long in the proportion of 100 lb. of salt to each bailer of water. Granulated salt is better than barreled salt as the former dissolves readily even in cold water, whereas the latter dissolves much more slowly. Using granulated salt the tool dresser can dump the salt into the water barrel while the driller is running the bailer and the brine will be quite ready for use as soon as the driller is set for the second trip with the bailer.

The question naturally arises as to whether or not the brine might not prove corrosive and hence quite damaging to wire drilling lines. We have watched carefully for any sign of this but have found none to date.

It is important, in drilling the long shale interval above the Onondaga lime (which may be as much as 3,500 ft. thick) to keep the walls of the hole well sprayed with cement and to do a full-hole cementing and redrilling job wherever a bad cave develops. Spraying alone will not hold up the wall once a bad cave has started. It is our policy to spray our holes through this section at least once each week during drilling, using nine sacks of cement each time. This is sufficient to spray the walls of approximately 700 ft. of new hole. We use a type of spray bailer which sprays from the bottom up. It is equipped with an automatic trip which releases when the bailer is set on the bottom of the hole. The rate of discharge from the bailer through the spray openings is known and the bailer is pulled slowly up the hole at a rate which synchronizes the amount of footage to be sprayed with the discharge rate from the spray bailer. This piece of equipment has been eminently satisfactory to us. There are types of spray bailers on the market which can be tripped by a weight dropped on the suspending line from the surface and which then spray the walls as the bailer is lowered. I understand that these work equally well.

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Abstracts of A. P. I. Papers

(Continued from Page 48)

posed of magnesium or aluminum alloys similar to those being used by the airplane industries. The latter method is the most recent and the most generally applied.

Factors dictating the selection of these materials are discussed as each alloy has dissimilar chemical properties and must be used accordingly. The methods of removal are either by chemical or mechanical means. Chemical removal is confined to the magnesium casing having been performed only experimentally on aluminum casing. The aluminum casing is usually removed by expanding reamer or wall scraper using rotary tools. Both alloys have been successfully removed by shooting, though it is not the general practice.

The practice of multisand completions is a distinctly improved method having the advantages of control of individual producing strata whether oil, gas, or water-bearing, since they may be opened or shut off as desired. Other advantages are that it permits exploitation of marginal formations which would otherwise be undeveloped, and provides a simple means of testing doubtful formations.

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INTERNATIONAL PETROLEUM EXPOSITION
TULSA
MAY 18-25

FIELD OPERATIONS

Summarizing the Week's Developments

WEST TEXAS—A wildcat in Crockett County, about 5 miles east of the Yates pool, may have opened the most important pool of the year. Producing from 1,035 ft. the well was at first wildly estimated as high as 75,000 bbl. a day but later it was estimated as flowing at the rate of 7,200 bbl. a day. The pay section is believed to correspond with that in the famous Yates field. It is owned by Soma Oil & Gas Syndicate, said to be headed by James Gouras, a Chicago restaurant owner.

WEST CENTRAL TEXAS—An outpost 1¾ miles north of the recently opened Flagg area in Stephens County was preparing to drill into the pay zone as a prospective producer.

NORTH TEXAS—Ordovician oil production has definitely been opened in the large K.M.A. field of southern Wichita County. The discovery well is making about 80 bbl. hourly from the Ellenburger lime, about 600 ft. below the Strawn pay of the field.

GULF COAST TEXAS—The Anchor field in Brazoria County was extended. A second well in the Chocolate Bayou field in Brazoria County to drill below 11,000 ft. is preparing to test at a total depth of 11,393 ft.

SOUTHWEST TEXAS—A pool was opened in Victoria County, northwest of the town of Telferner. A new pay was discovered in the McFaddin field in Victoria County. The first Tertiary Wilcox oil well in the district flowed 20 bbl. of distillate in 6 hours, and gas at the rate of 3,170,000 cu. ft.

LA-ARK-TEX—In coastal Louisiana a prospective pool opener in La Fourche Parish was being tested and a shallow pay is being tested in the deep Lafitte field.

ILLINOIS—The Centralia field in Clinton and Marion counties has made a "comeback" because of Devonian lime completions and production is up to 21,000 bbl. a day. However, production in the state continues to fall. Ninety-nine new operations were announced last week.

KANSAS—More than 60 new tests were started in Kansas fields, a record for the year. They include wildcats in Kearny, Rice, Russell, Barton, Cowley, Douglass and Butler counties. The Iuka pool, Pratt County, was extended ½ mile eastward. Topeka lime production was found in the Krier pool, Barton County, previously productive in Lansing and Basal zones. A new pool was opened in northeastern Barton County.

OKLAHOMA—The discovery well in the Cumberland pool, Marshall County, flowed 2,410 bbl. of oil in 14 hours and 45 minutes on original test and while washing the walls; later it flowed 182 bbl. an hour, and operators continued to test through various-sized chokes. Four new tests in the area have been announced. A Beckham County wildcat was bailing oil and gave promise of opening a pool.

MICHIGAN—The need for new pools is seen in the gradually falling production of the state and the diminishing average of initial production of wells.

CALIFORNIA—A new productive zone was opened in the Aliso Canyon field.

Completions in All Fields

(Week Ended April 13, 1940)

	Oil	Gas	Dry	Total	1940 total comp. to date	1939 total comp. to date
N. Y., Pa., and W. Va.	59	6	4	69	1,107	908
Ohio	4	9	10	23	274	254
Indiana	4	1	1	6	98	41
Kentucky	3	10	3	16	114	164
Illinois	61	0	7	68	960	950
Michigan	8	0	7	15	383	330
Kansas	31	1	5	37	412	307
Oklahoma	22	3	20	45	506	507
Texas:						
North Central Texas	45	0	22	67	930	644
West Texas	30	0	4	34	651	533
Texas Panhandle	7	4	0	11	170	107
East Texas	5	0	0	5	85	172
East Central Texas	3	1	1	5	75	72
East Texas Border	0	0	0	0	16	22
Gulf Coast Texas	16	0	6	22	382	386
Southwest Texas	21	1	19	41	673	673
Total Texas	127	6	52	185	2,982	2,609
North Louisiana	10	3	1	14	167	141
Gulf Coast Louisiana	19	0	5	24	251	166
Total Louisiana	29	3	6	38	418	307
Arkansas	4	0	1	5	64	69
Montana	1	0	0	1	37	36
Wyoming	5	0	0	5	46	27
Colorado	0	0	0	0	6	3
New Mexico	11	0	3	14	208	167
California	21	0	3	24	298	275
Total United States	390	39	122	551	7,913	6,954
Total previous week	380	29	122	531		
Week ended Apr. 15, 1939	322	32	109	463		

Outstanding Fields—Highlights

(Week Ended April 13, 1940)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	33	45	6	3,966	1,311	33,498
Wasson-Bennett	9	61	8	8,908	754	33,325
Ector County	18	67	10	6,276	2,065	61,947
Pecos County	3	18	0	0	1,250	36,500
Jones County	4	21	1	350	602	8,126
East Texas	7	11	5	302	26,012	396,948
OKLAHOMA						
St. Louis	2	14	2	423	877	31,000
Cement	2	19	3	1,754	301	6,550
KANSAS						
Bemis	0	6	2	700	282	7,900
Burnett	5	10	3	1,050	81	3,150
Silica-Ellinwood	0	15	5	1,100	619	14,500
Trapp	2	11	7	2,959	505	14,250
NEW MEXICO						
Lea County	13	48	6	1,661	2,430	95,750
Eddy County	13	65	5	1,719	545	17,210
LA-ARK-TEX						
Cotton Valley, La. (deep)	0	3	1	505	158	14,970
Magnolia, Ark.	0	3	3	1,730	103	20,000
Golden Meadow, La.	2	12	4	891	73	10,600
MICHIGAN						
Freeman-Redding	1	10	1	157	150	14,112
Kent County	7	21	3	243	296	16,115
CALIFORNIA						
Montebello	0	11	0	0	362	20,750
ILLINOIS						
Salem	17	84	29	33,100	1,838	251,116
Louden	2	23	8	1,471	1,395	75,012
Other fields	51	283	24	11,908	3,620	87,681
Old fields	....	....	....	.....	.....	7,945
MISSISSIPPI						
Tinsley	2	10	3	3,580	38	7,650

Illinois, Indiana and Kentucky

By STAFF CORRESPONDENT

Production Drops in Illinois; 99 New Operations in State

CENTRALIA, Ill., Apr. 15.—Illinois production last week declined 5,652 bbl. from the total of the previous week, production for the week ended Saturday, April 13, having averaged 421,754 bbl. per day, with Salem producing 251,116 bbl.; Louden, 75,012 bbl., and other basin pools 87,681 bbl. The old fields of the state fell off to 7,945 bbl. per day. The Centralia field, which had fallen to insignificance before the Devonian lime drilling campaign in that field began, is up to an average of 21,215 bbl. and is expected to exceed that figure before the decline sets in as the town-lot and suburban sectors are being punctured by scores of wells.

Twenty-three Devonian wells in Salem field were completed last week with an actual initial production of 32,261 bbl. and a potential initial production of 44,109 bbl. Six wells were completed in the field in pays above the Devonian. Altogether 61 new oil wells and 7 dry holes were completed in the state in the course of the week.

J. Hal Jones is drilling a Trenton lime test in Centralia but the well is a "mystery" and the estimated depth, 3,400 ft., cannot be relied upon as correct.

A deep test financed by citizens of St. Elmo in Fayette County was abandoned as dry at 2,015 ft., after it drilled through the McClosky lime. Texas Co.'s No. 1 Secondo Buff near Avena in Fayette County, a former producer from the Weller sand, was deepened to the McClosky lime and found it dry. The well was shut down at 2,130 ft. awaiting orders.

The discovery well in the Devonian lime in Centralia, which was credited with 767 bbl. initial production on December 23, is down to 35 bbl. a day on the pump, which gives an idea as to the staying qualities of Devonian production. In Section 20-2n-2e, where the first Devonian lime well in the Salem field was completed last November, one new well last week pumped 12 bbl. initially.

In their anxiety to keep production from slipping too rapidly, Illinois operators reported 99 new operations in the past week, or 31 more than the 68 completions of the week.

Following were the completions, the initial production representing 24 hours unless otherwise given:

In Henry County R. Eke's No. 1 Pattern, SE SE SW Section 1-17n-3e of fourth principal meridian, was plugged and abandoned at 150 ft.

In Macon County S. D. Jarvis' No. 1 Veeck, SE SE NE Section 11-16n-3e, had Devonian lime at 2,311 ft. and drilled to 2,360 ft. where the hole was abandoned as dry. No showings were reported.

Fayette County

In the Louden field in Fayette County Carter Oil Co.'s No. 2 L. Huffman, NE SE NE Section 2-8n-3e, had Cypress sand at 1,518-55 ft., was shot with 10 qt. and made a 48-bbl. pumper. Carter's No. 2 Hedges, NE SW NW Section 21-8n-3e, Cypress sand at 1,484 ft. and Paint Creek at 1,542 ft., total depth 1,580 ft., shot with 50 qt., pumped 468 bbl. Carter's No. 8 S. M. Dial, SE NW NE Section 33-8n-3e, Cypress at 1,466-1,514 ft., Paint Creek at 1,553-69 ft., shot with 25 and 30 qt., pumped 312 bbl. Irl Rhymes' No. 4 Koberlin, SE NE SE Section 5-7n-3e, Cypress at 1,467-1,505 ft. and Paint Creek at 1,527-61 ft., shot with 50 and 5 qt., pumped 98 bbl. Carter's No. 12 Welker, NW NW NW Section 18-7n-3e, shot with 25 qt. at 1,570-74 ft., Bethel sand, pumped 180 bbl.

Texas Co.'s No. 1 Stine, NE NE NW Section 7-6n-3e, Cypress sand at 1,576-82 ft., total depth, pumped 70 bbl. without a shot. Texas' No. 2 Chrisman, NE SE SW Section 30-6n-3e, Cypress at 1,546-52 ft., total depth, no shot, pumped 133 bbl. Ohio Oil Co.'s No. 12 Schwarm, NW NW SW Section 31-6n-3e, Cypress sand at 1,585-1,612 ft., shot with 8 qt., pumped 162 bbl.

In Lawrence County Whisenant's No. 1 Wagner, NE cor. Section 20-4n-13w of second principal meridian, was dry and abandoned at 2,577 ft. McClosky sand was penetrated at 2,486-92 ft.; it contained water. La Salle's No. 1 Wright, NE NW SE Section 21-2n-13w, was dry an dabandoned at 2,939 ft., McClosky was topped at 2,728 ft. and St. Louis lime at 2,883 ft.; it was an old well deepened.

In Clinton County O. W. Burroughs' No. 1 Klein, SE SE SE Section 35-2n-2w, topped Benoist sand at 1,372-80 ft., total depth, and was abandoned as dry.

Marion County

In the Salem field in Marion County 23 Devonian lime wells were completed with an actual initial production of 32,261 bbl. per day and a 24-hour potential initial production of 44,109 bbl. or an average of 1,918 bbl. per well.

Texas Co.'s No. 29 Jett, SW cor. Section 16-2n-2e, had Devonian pay at 3,449-77 ft., was acidized with 5,000 gal., and flowed 619 bbl. Texas' No. 12 Martin, SE cor. Section 17-2n-2e, Devonian pay at 3,440-72 ft., acidized with 5,000 gal., flowed 1,023 bbl. Magnolia Petroleum Co.'s No. 95 J. H. Young, SE SE SE Section 20-2n-2e, Devonian pay at 3,398-3,439 ft., 1,000 gal. of acid, pumped 66 bbl. Shell Oil Co., Inc.'s No. 6-C Young heirs, NE cor. NW NE SE Section 20-2n-2e, pay at 3,392-3,414 ft., shot with 10 qt. at 3,407-23 ft. and acidized with 2,000 gal., total depth 3,445 ft., pumped 21 bbl.

Shell Oil Co.'s No. 17-C Young heirs, SW NE SE Section 20-2n-2e, pay at 3,389-3,441 ft., no shot or acid, pumped 5 bbl. Texas Co.'s No. 28 N. Young, SW cor. SE SE NE Section 20-2n-2e, pay at 3,398-3,430 ft., 3,000 gal. of acid, pumped 70 bbl.

Magnolia Petroleum Co.'s No. 96 J. H. Young, SW NW SW Section 21-2n-2e, pay at 3,448-3,502 ft., 5,000 gal. of acid, flowed 724 bbl. Magnolia's No. 99 J. H. Young, NE SW NW Section 28-2n-2e, pay at 3,437-3,507 ft., 5,000 gal. of acid, flowed 2,320 bbl. Texas Co.'s No. 17 Friederich, NE SW NW Section 29-2n-2e, pay at 3,429-70 ft., 5,000 gal. of acid, flowed 1,696 bbl. Texas' No. 18 Friederich, SE NW NW Section 29-2n-2e, pay at 3,455-86 ft., 5,000 gal. of acid, flowed 1,680 bbl. Texas' No. 19 Friederich, NE NW NW Section 29-2n-2e, pay at 3,466-3,502 ft., 5,000 gal. of acid, flowed 1,631 bbl. I. D. Lain's No. 11 Dempsey, NE NE SW Section 31-2n-2e, pay at 3,344-85 ft., 3,000 gal. acid, flowed 3,250 bbl. Magnolia's No. 4 Mary Harley, NE SW NE Section 31-2n-2e, pay at 3,314-80 ft., 5,000 gal. of acid, flowed 5,193 bbl. Texas' No. 7 Corbin, SW cor. SE NE Section 31-2n-2e, pay at 3,300-33 ft., acidized with 5,000 gal., flowed 645 bbl. in 3 hours, rated at 4,500 bbl. per day. Texas' No. 14 L. Dunning, NE NW SE Section 31-2n-2e, pay at 3,301-40 ft., 5,000 gal. of acid, flowed 859 bbl. in 3 hours, rated at 6,000 bbl. per day. Texas' No. 4-L. Maxwell A, NW SE NE Section 31-2n-2e, pay at 3,299-3,350 ft., 5,000 gal. of acid, flowed 3,191 bbl. Texas' No. 24 Wayman, SW cor. SE NW NE Section 31-2n-2e, pay at 3,346-80 ft., 5,000 gal. of acid, flowed 1,516 bbl. in 9 hours, rated at 3,535 bbl. per day through 1-in. choke. Texas' No. 26-K Wayman, pay at 3,314-47 ft., 5,000 gal. of acid, flowed 2,667 bbl. in 16 hours, rated at 3,500 bbl. a day. Texas' No. 8 L. Maxwell, NW NE NE Section 32-2n-2e, pay at 3,364-3,415 ft., 5,000 gal. of acid, flowed 653 bbl. Texas' No. 27 McCollum, NW NW NE Section 32-2n-2e, pay at 3,351-98 ft., 5,000 gal. of acid, flowed 451 bbl. Texas' No. 9 S. Shereshovech, SW cor. NW Section 33-2n-2e, pay at 3,443-65 ft., 5,000 gal. of acid, flowed 2,366 bbl.

In Section 5-1n-2e, Texas Co.'s No. 26 Johnson, NW cor. SE NE. SW, Devonian pay at 3,385-3,458 ft., shot with 100 qt. and acidized with 2,000 gal., flowed 958 bbl. Texas' No. 27 V. Kalkbrenner, SE NE SW Section 5-1n-2e, pay at 3,391-3,459 ft., shot with 90 qt. at 3,391-3,436 ft. and then acidized with 2,000 gal., flowed 657 bbl.

Only six wells were completed in pays above the Devonian in the Salem field. Nick Barnare's No. 2 Young heirs strip, SE SE SE Section 20-2n-2e, had Benoist sand at 1,757-1,854 ft.; shot with 120 qt. it swabbed 205 bbl. Magnolia Petroleum Co.'s No. 100 J. H. Young, SE SE SE Section 20-2n-2e, shot with 140 qt. at 1,758-1,868 ft., Benoist and Aux Vases sands, pumped 128 bbl. Magnolia's No. 68 J. H. Young, C W½ SE SW Section 21-2n-2e, McClosky lime at 1,995-2,088 ft., acidized with 200 and 3,000 gal., pumped 121 bbl. Texas Co.'s No. 20 R. Shanafelt, NW cor. NE NE NE Section 29-2n-2e, shot with 100 qt. in Benoist and Aux Vases sands at 1,767-1,867 ft., pumped 91 bbl. Texas Co.'s No. 25 L. Hawthorne, SW SW SE Section 5-1n-2e, McClosky lime at 1,987-92 ft. and 1,995-2,000 ft., acidized with 2,000 gal., pumped 84 bbl. Texas' No. 13 J. Richardson, NW SE NW Section 5-1n-2e, McClosky lime at intervals from 1,935 to 1,982 ft., total depth 2,000 ft., flowed 210 bbl. naturally.

Centralia's Devonian Completions

Four Devonian lime wells were completed in the Centralia townsite in Marion County, with total initial production of 1,340 bbl. On the western edge of the city in Clinton County 10 Devonian wells were completed with a combined initial output of 8,568 bbl. Altogether 14 wells showed 9,908 bbl. in first-day production.

In the Marion County side of the Centralia field Bert Fields' No. 1 Clark, SW cor. Section 7-1n-1e, an old well deepened to Devonian lime had pay at 2,912-29 ft., was shot with 30 qt. on bottom, flowed 325 bbl. Hughes Petroleum Co.'s No. 1 Dunbar, NE NW SW Section 18-1n-1e, Devonian pay at 2,901-07 ft., total depth, acidized with 2,000 gal., flowed 390 bbl. Hughes' No. 1 Van Buskirk, SW cor. NW SW Section 18-1n-1e, pay at 2,898-2,910 ft., 2,000 gal. of acid, flowed 265 bbl. Lange's No. 1 Kruger, NW cor. SW Section 18-1n-1e, pay at 2,893-2,932 ft., 3,000 gal. of acid, flowed 360 bbl.

On the Clinton County side of the Centralia field Whisenant & Trenchard's No. 2 Hefter heirs, NE SW NE Section 13-1n-1w, pay at 2,912-20 ft., 1,500 gal. of acid, flowed 75 bbl. Thompson & Sward's No. 1 Elrod, SE NE NE Section 13-1n-1w, pay at 2,902½-10½ ft., total depth, 2,000 gal. of acid followed by a 20-qt. shot, flowed 309 bbl. Halstead Oil Co.'s No. 1 Geary, NE NW SE Section 13-1n-1w, Devonian at 2,878-2,962 ft., casing perforated at 2,916-22 ft. and treated with 1,000 gal. of acid, flowed 155 bbl. Eason Oil Co.'s No. 2 Sailor, NW SE NE Section 13-1n-1w, casing perforated opposite Devonian at 2,904-11 ft. and 2,927-34 ft., 2,000 gal. of acid, flowed 238 bbl. of oil and 100 bbl. of water. Joe Carroll's No. 1 Tate, SE NE SE Section 12-1n-1w, Devonian pay at 2,917-30 ft., 1,000 gal. of acid, flowed 912 bbl. L. Lilly and others' No. 1 Home Building & Loan, SW NE SE Section 12-1n-1w, pay at 2,899-2,920 ft., 500 gal. of acid, flowed 857 bbl. W. C. McBride, Inc.'s No. 8 Allison, SE SE NE Section 12-1n-1w, pay at 2,913-23½ ft., 3,000 gal. of acid, flowed 1,440 bbl. Millhouse and others' No. 1 Beavers, SW SW SE Section 12-1n-1w, pay at 2,921-31 ft., flowed 1,980 bbl. naturally through open casing. John Peters' No. 1 Farrell, SW NE SE Section 12-1n-1w, pay at 2,901-30 ft., 2,000 gal. of acid through perforated casing, flowed 1,002 bbl. P. C. Perry's No. 1 Roth, in NE SW SE Section 12-1n-1w, pay at 2,902-23 ft., 3,000 gal. of acid, flowed 1,600 bbl.

In Wayne County Al. Stengle's No. 1 Faulkner, C N½ NE SE Section 34-1s-7e, was dry and abandoned at 3,289 ft. It had showings of oil in Fredonia lime at 3,202-70 ft. Oil Well Drilling Co.'s No. 2 Hilliard, C N½ SE SW Section 27-1s-7e, Rosiclare pay at 3,335-40 ft., pumped 117 bbl. in 17 hours. It had not been shot or acidized. New Penn Development Co.'s No. 1 Emma Elliott and others, SW NW NE Section 35-2s-8e,

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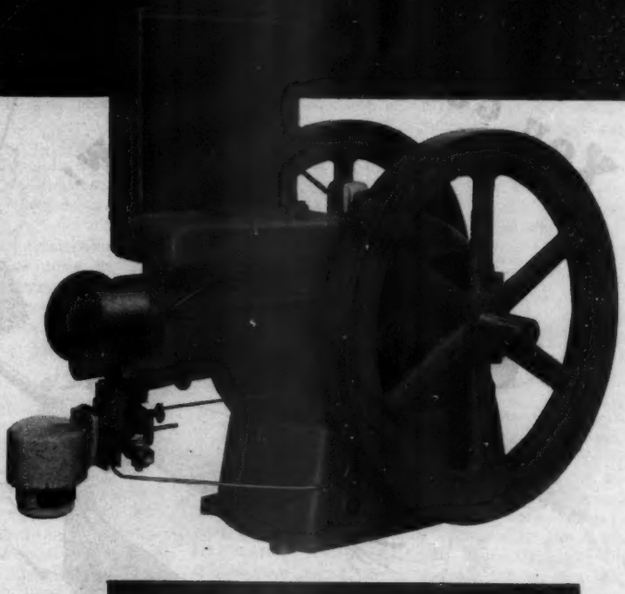

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Displacement, cubic inches	118	208
Speed Range, r. p. m.	350-700	325-650
Maximum Recommended Speed, r. p. m.	700	650
Rated Horsepower at Maximum Speed for Continuous Duty (Nat. Gas.)	7	10
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In Washington County Chicago Syndicate's No. 1 Hanke, NE SE NE Section 3-2s-1w, Cypress sand at 1,502-95 ft., Paint Creek at 1,600 ft., total depth 1,651 ft., dry and abandoned.

In Wabash County United States Oil Co. abandoned No. 1 Stillwell, NW cor. SW NW SE Section 7-1n-11w, at 850 ft. Zephyr Drilling Co.'s No. 3 Cowling, SW NW SW Section 17-2s-13w, was shot with 10 qt. in Cypress sand at 2,463-69 ft., pumped 200 bbl.

In White County New Penn Development Co.'s No. 1 McKyes, NE NE SE Section 19-3s-8e, Aux Vases sand at 3,222-54 ft., not shot, pumped 118 bbl. Spiller and others' No. 3 Felix, SW SW NW Section 20-3s-8e, Aux Vases sand at 3,225-44 ft., not shot, pumped 164 bbl. W. F. Fortner and others' No. 1 G. P. Colvin, NE NE SW Section 9-4s-14w of second principal meridian, Benoist sand at 2,706-23 ft., not shot, pumped 120 bbl. In the Storms pool Exchange Oil Co.'s No. 1 Angle-Storms, NE NE NE Section 22-6s-9e, Waltersburg sand at 2,226-55 ft., flowed 175 bbl. of oil and 30,000,000 cu. ft. of gas, naturally. In the Irons pool J. W. Carter's No. 1 Johnson, SW NW NE Section 25-6s-8e, shot with 10 qt. at 2,522-33 ft., total depth 2,534 ft., pumped 531 bbl.; this was an old well deepened from 2,528 ft. Carter Oil Co.'s No. 1 Poole, SW NE NE Section 25-6s-8e, Hardinsburg sand at 2,521-45 ft., shot with 60 qt., pumped 504 bbl. Kingwood Oil Co.'s No. 3 Bailey, NE NE NW Section 25-6s-8e, Hardinsburg sand at 2,498-2,531 ft., shot with 60 qt. on bottom, pumped 484 bbl.

In Gallatin County Colbeck's No. 1 Duffey, NE NW NW Section 25-8s-9e, an old well worked over, had casing perforated at 2,785-95 ft., was acidized with 500 and 1,000 gal. and shot with 20 qt. at 2,803-11 ft. but the best it could do was 7½ bbl. of oil and 30 bbl. of water per day.

In Clinton County Thompson & Freeze's No. 1 Brandborst, SE NE NE Section 3-1n-2w, had Benoist sand at 1,309-26 ft., dry and abandoned.

New Wildcat Operations

In Marion County Max Pray and others' No. 1 Thurman, 640 ft. from south and 221 ft. from east lines of SW Section 15-3n-2e, drilling at 805 ft.

In Jasper County Pure Oil Co.'s No. 1 Redman, C E½ NW NW Section 16-5n-10e, rigging up rotary.

In Clinton County L. V. Garnier's No. 1 Tony, C W½ NW NE Section 30-3n-2w, moving in rotary for a Devonian lime test.

In Schuyler County George Brainard and G. W. Gerson's No. 1 Foster, NW cor. SE SE Section 21-3n-4w of the fourth principal meridian, drilling at 180 ft.

In Fayette County St. Elmo Oil Corp.'s No. 1 Wiseman, 270 ft. from south and 358 ft. from east lines of NE NW NW Section 27-7n-3e, was drilling at 1,735 ft. It is a McClosky lime test. Texas Co.'s No. 1 Buff, 13 ft. from south and 1,344 ft. from west lines of NW NW Section 31-7n-3e, an old well deepened from 1,591 ft., was dry in the McClosky but was drilling at 2,084 ft.

In Hancock County Emery & King's No. 1 Charles Hast, 990 ft. from north and 400 ft. from east lines of NE Section 23-7n-5w of fourth principal meridian, drilling at 600 ft.

In Fayette County B. B. Lesh's No. 1 H. Haynes, 149 ft. from south and 185 ft. from east lines of NW SW Section 35-6n-2e, rigging up standard tools.

In Crawford County La Salle Drilling Co.'s No. 1 Wall, 760 ft. from north and 330 ft. from west lines NE Section 9-6n-13w, spudded.

INDIANA

EVANSVILLE, Ind., Apr. 15.—Last week's roundup of field operations found four oil wells completed in Gibson County with a combined initial production of 341 bbl.; a gas well and a dry hole in Spencer County, a 60-bbl. well in Posey County, and a dry hole in Perry County.

Gibson County

A. L. Braden and others' No. 1 Simpson, SW cor. NW SE NE Section 19-3s-11w, Gibson County, had Ste. Genevieve lime top at 2,480 ft. and McClosky pay at 2,692-94 ft., and sand at 2,695-96 ft. It was acidized with 1,000 gal. and a 90-bbl. oil load and pumped 168 bbl. the first day. It was completed.

Midwest Development Co. completed No. 1 Brock, SE SW SE Section 10-2s-9w. It was shot with 120 qt. at 1,346-88 ft. and pumped 25 bbl. of oil and 10 bbl. of water.

Braden and others were rigging up standard tools to start No. 1 Knight, NE SW SW Section 2-24-11w.

W. C. McBride, Inc., made a location for No. 1 Blair, SE SE NW Section 13-2s-12w. Papoose Oil Co. made a location for No. 6 Cooper-A, NW NW SW Section 13-3s-14w.

Continental Oil Co. completed No. 1 Kleiderer, NW SE NW Section 26-3s-14w, after plugging back from 3,001 to 2,778 ft. and shooting with 40 qt. at 2,762-78 ft. The well made 128 bbl. initially, on the pump.

J. E. Amis, Jr., was building rig for No. 8 Cooper. 435 ft. from north and 70 ft. from west lines of NE NE Section 24-3s-14w.

Papoose Oil Co.'s No. 4 Cooper-A, NW SW SW Section 13-3s-14w, pumped 210 bbl. in 15 hours from sands at 2,476-84 ft. and 2,496-2,507 ft., but the well was not yet a completion. Papoose's No. 5 Cooper-A was in Cypress sand at 2,481-91 ft., with pipe set at 2,481 ft. The crew was waiting for cement to set. Obermeyer and others' No. 1 Kleiderer, SE SE SE Section 28-3s-14w, had Aux Vases sand at 2,774-88 ft., and set 5½-in. casing at 2,774 ft. Joe Bander and others' No. 31 Cooper, SE cor. SW SE Section 13-3s-14w, had 600 ft. of oil in the hole and was shot with 10 qt. at 2,500-12 ft. The crew was cleaning out. Joe Bander and others' No. 11 Cooper. SE NW NE Section 13-3s-14w, had sand at 2,861-68 ft. and set pipe at 2,855 ft. Cherry & Kidd and others were drilling at 1,285 ft. in No. 1 Dunn, SE SW NE Section 17-3s-13w. Spitznagle & Moore's No. 2 Hester, SE cor. SW NE Section 8-3s-13w, total depth 2,816 ft., was plugged back to 2,100 ft. and was awaiting owners' orders.

(Continued on Page 95)

WESTERN KENTUCKY

OWENSBORO, Ky., Apr. 15.—Three oil wells and three dry holes were completed in the past week in western Kentucky and six new operations were started. Following is the record of the week:

Butler County, Silver City district: Cumberland Petroleum Co. and others' No. 5 Lee Hawkins, drilling at 170 ft.

Daviess County, Glenville district: A. Teller, trustee's

(Continued on Page 74)

MANY A SUCCESS in the oil industry has started with the purchase of a Timken 6-Wheel Tandem Drive Unit. Knowing how to get rolling stock capable of moving heavy drilling equipment over rough, hilly ground without delays caused by bogging down and breakdowns—knowing how to keep overhead down—that's the secret. You'll profit, too, with Timken 6-Wheel Tandem Drive Units.

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Texas and Louisiana Gulf

By
NEIL WILLIAMS

South Louisiana Continues to Lead in New Developments

HOUSTON, Tex., Apr. 15.—Coastal Louisiana continued to remain in the limelight of Gulf Coast operations as preparations were being made to test a prospective pool opener in La Fourche Parish, and several extensions and new sands were indicated in a number of proven fields.

Approximately 5½ miles northeast of the Barataria field, and in Plaquemines Parish, California Oil Co. was scheduled to test No. 1 Delta Minerals Co. after cementing a production string of 7-in. casing at 10,188 ft. While little direct information has been released, it is reported that approximately 15 ft. of well-saturated sand was topped at approximately 9,990 ft. Total depth of the hole is 10,246 ft., and it is assumed that the production test will be made at intervals from 9,900-10,188 ft. Location is in Section 2-15s-24e.

The La Fourche Crossing field, La Fourche Parish, was extended about 1,600 ft. southeastward with the completion of Mikton Oil Co.'s No. 2 Martinez, which is flowing at the rate of 210 bbl. of pipe-line oil per day while testing through a 11/64-in. choke. Tubing pressure was 1,100 lb. The well was drilled to 10,998 ft., and final completion was made by perforating casing at 10,108-20 ft., which is approximately the same depth at which the discovery well was completed.

In the Lafitte field, Jefferson Parish, which holds the distinction of being the first field to produce from below 10,000 ft., Texas Co. apparently is opening a shallow sand as drill-stem testing through perforated casing in No. 15 Lafitte, at 5,130-40 ft., recovered 2,400 ft. of pipe-line oil and 1,000 ft. of salt water. The perforations have been squeezed off and the well is being retested in the same horizon.

In the same parish, and in the Barataria field, California Oil Co. was testing two wells. No. 1 State-Bayou is being tested through perforated casing at 8,197-8,216 ft., while No. 1 Zerigue-Community is being tested through perforated casing at 8,271-79 ft. A recent test through perforated casing at 8,271-85 ft. recovered several hundred feet of oil and salt water. Perrin & Brian's No. 1 Reutley Wiseman is bottomed at 9,790 ft., and is scheduled to test new sands logged by an electrical survey at 8,700 ft., and 8,800 ft.

Jolly Petroleum Co.'s No. 1 Matthews, an outpost to the Paradis field, St. Charles Parish, is coring shale below 10,336 ft. An electrical survey to 10,140 ft. had no showings of oil or gas, and the well is reported to be correlating 170 ft. lower than Texas Co.'s No. 2 Paradis.

Texas Co.'s No. 1 Vermilion Parish School Board, the discovery well of the Erath prospect, Vermilion Parish, has been killed because of salt water encroachment and will be retested. It was completed the previous week through perforated casing at 11,378-88 ft., and flowed at the rate of 300 bbl. of pipe-line oil daily through a 12/64-in. choke. Salt water made its appearance, and during the last 24-hour gage before the well was killed, it flowed 121 bbl. of fluid per day through a 13/64-in c.hoke. of, which 16 per cent was salt water. Grady Vaughn's No. 1 Boullion, in the same area, is drilling in shale below 10,260 ft.

Another discovery well scheduled to be killed and recompleted as the result of salt water encroachment, is Continental Oil Co.'s No. 1 Niblett Farms, in the Hays area, Jefferson Davis Parish. Originally completed through perforated casing at 11,604-24 ft. for an initial production of 100 bbl. of oil per day, the well is now flowing 80 to 100 bbl. of fluid per day through a 1/16-in. choke. It is producing from 8 to 20 per cent salt water. Tubing pressure is 2,500 lb.

Amerada Petroleum Corp. completed its first producer in the Wilcox sand in the Villa Platte field, Evangeline Parish. Drilled to a total depth of 10,190 ft., No. 1 Roberie, was completed through perforated casing at 10,114-31 ft. and gaged 633 bbl. per day flowing through a ¼-in. choke under a tubing pressure of 1,250 lb. The well is situated midway between Danciger Refining Co.'s No. 1 Vidrine, the most southerly Wilcox producer and the field proper.

East of Morgan City, and in southern Assumption Parish, Shell Oil Co., Inc., staked location for No. 1 A. L. Paterson Unit 1, Section 66-16s-14e. The company controls a block of several thousand acres which was leased on the strength of extensive geophysical work.

In the West Lake Verrett field, St. Mary Parish, Shell Oil Co., Inc.'s No. 4 Jeanerette, is reported to be flowing gas, distillate and an unestimated amount of salt water while cleaning out through perforated casing at 11,326-31 ft.

The exploration around old known salt-dome structures was extended to the Belle Isle dome, St. Mary Parish, and to the Bay Junop structure in Terrebonne Parish. The well at Belle Isle will be drilled by Sun Oil Co. in Section 6-18s-11e, while at Bay Junop, Stanolind Oil & Gas Co. staked location for No. 1 State in Section 35-21s-14e.

Texas Coast

Along the Texas coast, interest was centered on the Tamina area, southern Montgomery County, where David B. MacDaniel has cemented 5½-in. casing preparatory to testing No. 1 Hattie Baldwin, a Teritiary Wilcox test, in the Walker County School Land Survey. The well has been drilled tight, and the following information is subject to correction. Casing was cemented on bottom at 9,741 ft. following an electrical survey, which is reported to have shown some porosity at 4,810-50 ft.; 9,300-80 ft., and 9,400-18 ft. The Wilcox was indicated at 9,300 ft. The Cockfield was reported topped at 5,730 ft., and the Carrizo at 8,665 ft.

In the Chocolate Bayou field Glenn McCarthy was attempting to establish a new deep-production record for the Texas coast as preparations were made to test No. 1 Andrau, 1½ miles northwest of the discovery well, and No. 2 Houston Farm Development Co., about 3,000 ft. northwest of the discovery well. The Andrau well was drilled to 11,393 ft. and 4-in. liner is being cemented on bottom, while No. 2 Houston Farm Development Co. was drilled to a depth of 11,760 ft., and 5½-in. liner was cemented at 11,170 ft. The latter well is the deepest test ever drilled on the Texas coast. An electrical survey of both wells is reported to have shown several sands, but details have not been released by the operator.

Strake Petroleum Co.'s No. 1 Winnie Poole, a Tertiary Wilcox test located on the Lissie prospect, Wharton County, has been temporarily abandoned. The well was drilled to a total depth of 10,110 ft., and 5½-in. casing was cemented on bottom. Several production tests at intervals from 9,900-50 ft., recovered various amounts of oil, gas and salt water. The well is reported to have topped the Discorbis Yeguaensis at 6,335 ft.; Eponides Yeguaensis at 6,375 ft.; Cook Mountain at 6,906 ft., and Cyclamina at 8,354 ft.

In the Anchor field, Brazoria County, Humble Oil & Refining Co. extended production to the southeast with the completion of No. 1 R. H. Carr, which was completed through perforated casing at 10,479-91 ft. for an initial production of 138 bbl. of 41-gravity oil per day, flowing through a ¼-in. choke. The company's No. 1 Crockett was abandoned at a total depth of 10,615 ft., after a series of tests through perforated casing at intervals from 9,600-10,400 ft., recovered salt water. The company's No. 1 Galznik & Taylor, southwest of production, flowed 75 bbl. of distillate per day through a 5/32-in. choke. Tubing pressure was 2,300 lb. The well is producing from perforated casing at 10,480-83 ft.

Location for another wildcat was made in the Needville area, Fort Bend County, by W. L. Goldston for No. 1 Hackstedt, located in the H.&T.C. Survey 47. The well is about 2 miles southeast of the town of Needville and will be drilled to 9,500 ft.

Approximately ½ mile north of Wilcox production at the Joe's Lake field, Tyler County, Republic Production Co.'s No. 3 Sterne, is shut down waiting for orders at a total depth of 4,875 ft., after a 10-minute drill-stem test at 4,855-75 ft., showed 425 lb. working pressure and 15 ft. of drilling mud, cut with distillate. The well is about 1½ miles southeast of the company's No. 1 Sterne, recently completed as a good producer in the Cockfield sand at 4,704 ft. Wilcox production in the field is defined to the north and the development of Cockfield production to the north which was originally opened as the Spurger gas field, has attracted much attention.

TEXAS GULF COAST COMPLETIONS IN PROVEN FIELDS

Brazoria County

Anchor field: Humble Oil & Refining Co.'s No. 1 R. H. Carr, perforated casing 10,479-91 ft., 138 bbl., ¼-in. choke. Humble Oil & Refining Co.'s No. 1 Crockett, 10,615 ft., dry and abandoned. Humble Oil & Refining Co.'s No. 1 Galznik & Taylor, perforated casing 10,480-83 ft., 75 bbl., 5/32-in. choke. Hastings field: Humble Oil & Refining Co.'s No. 11 Alexander, sand 6,070-85 ft., 187 bbl., ¼-in. choke. Stanolind Oil & Gas Co.'s No. 3 Hiram Moore, 6,110 ft., 363 bbl., ¼-in. choke. West Columbia field: Hogg Oil Co.'s No. 10 Hogg, sand 5,141-68 ft., 504 bbl., ¼-in. choke.

Chambers County

Anahuac field: Humble Oil & Refining Co.'s No. 12 Wilcox, sand 7,004-40 ft., 524 bbl., ¼-in. choke.

Fort Bend County

Thompson field: Quintana Petroleum Corp.'s No. 8-B Wolters, perforated casing 5,404-12 ft., 108 bbl., ⅛-in. choke.

Harris County

Clear Lake field: Humble Oil & Refining Co.'s No. 38-C West, sand 5,902-08 ft., 151 bbl., ⅛-in. choke. Friendswood field: Humble Oil & Refining Co.'s No. 2 Pendarvis, 6,104 ft., dry and abandoned.

Jackson County

West Ranch field: Lonnie Glasscock's No. 2-B Drummond, perforated casing 5,765-72 ft., 619 bbl., ¼-in. choke. Humble Oil & Refining Co.'s No. 8 Toney, sand 5,499-5,523 ft., 415 bbl., ¼-in. choke. Magnolia Petroleum Co.'s No. 59-A West, perforated casing 5,125-30 ft., 395 bbl., ¼-in. choke. Magnolia Petroleum Co.'s No. 64-A West, perforated casing 5,106-14 ft., 552 bbl., ¼-in. choke.

Jefferson County

Lovells Lake field: Humble Oil & Refining Co.'s No. 14 Broussard, sand 7,784-90 ft., 174 bbl., ⅛-in. choke. North Cheek field: Strake Petroleum Co.'s No. 1 Phelan, 8,946 ft., dry and abandoned.

Orange County

Orange field: Gulf Oil Co.'s No. 4-B La Flour, sand 5,956-61 ft., 671 bbl., ¼-in. choke.

Polk County

Segno field: Jordon Oil Co.'s No. 8-A Wing, sand 8,110-33 ft., 579 bbl., ¼-in. choke.

California Field Report

Find Important Gas Zone in Aliso Canyon in L. A. Basin

By L. P. STOCKMAN

LOS ANGELES, Calif., Apr. 15.—Tide Water Associated Oil Co. discovered a new productive zone in the Aliso Canyon field of Los Angeles Basin a couple of weeks ago, but got a gas well instead of a normal production of crude oil. Completion was held up until late last week, when the company announced that No. 12 Porter, the deep-zone discovery well, had been completed, flowing a large volume of gas. During the initial 24-hour flow test the well produced 262 bbl. gross fluid; 201 bbl. of 53.4-dry gravity; average cut 23.4 per cent, consisting of 16.7 per cent water, 5.7 per cent emulsion and 1 per cent mud; 12,628,000 cu. ft. of gas; 1,875 lb. tubing pressure and 2,320 lb. casing pressure behind a 32/64-in. bean. No. 12 Porter cleaned up to less than 1 per cent and produced 240 bbl. daily before being shut in. The well shows a shut-in pressure of 3,000 lb. It was drilled to 8,202 ft., but was later plugged back to 7,551 ft., at which depth a good-looking sand had been cored during drilling operations. The well has an elevation of 1,968.5 ft. above sea level and contains 512 ft. of 16-in. surface pipe; 2,310 ft. of 11¾-in. casing; 4,721 ft. of 9-in. casing; 684 ft. of 3½-in. liner landed at 7,548 ft. and perforated at 6,908-6,548 ft. and 6,555 ft. of 2½-in. tubing.

The Aliso Canyon field was discovered by Tide Water Associated Oil Co. in October 1938, and the discovery recently of the new gas zone is particularly significant because it is the first major accumulation of gas found in southern California since the advent of deep drilling in the west end of the Montebello field, which is now on the way out as far as La Merced zone is concerned. No. 12 Porter is 4½ miles from the main gas-transmission line of the Southern California Gas Co. Most of the potentially productive acreage in the field is held by Tide Water Associated Oil Co., but it is possible that acreage of Union Oil Co. at the north end of the field may also be found productive.

Current production of leading California fields follows:

	Bbl.
Wilmington	83,350
Midway-Sunset	59,950
Kettleman Hills	51,610
Long Beach	46,250
Ventura Avenue	31,150
Huntington Beach	28,300
Santa Fe Springs	27,150
Montebello	20,750
Santa Maria Valley	15,250

Wilmington

The Wilmington field of Los Angeles Basin headed the completion list in the past week with six new wells that showed an aggregate initial production of 1,851 bbl. per day. The largest new well was No. 15-A Harbor, a tideland well of Hancock Oil Co. that was completed flowing 856 bbl. of very clean 28.5-gravity oil per day from the Terminal zone with bottom of the hole at 4,063 ft. This well, which was brought in flowing through a 32/64-in. bean and showed a tubing pressure of 250 lb. and a casing pressure of 950 lb., was finished with an 11¾-in. water string cemented at 2,380 ft. and an 8⅝-in. gravel-packed liner landed at 4,063 ft., and cemented through perforations at 2,910 ft. and 3,455 ft. Perforations were at 2,910-3,380 ft., 3,455-4,063 ft. and production was brought in flowing through 3,750 ft. of 2½-in. tubing that had a packer at 3,400 ft.

General Petroleum Corp., first operator to develop substantial production in the Wilmington field, completed a small Ranger zone well in No. 7 Blinn, which flowed 125 bbl. of 14.6-gravity oil per day through a 96/64-in. bean from a depth of 3,300 ft. No. 1 Wilmington Community, of Barnhart-Morrow Consolidated Oil Co., showed an initial production of 360 bbl. of 17.4-gravity oil, cutting 5 per cent upon completion in the Ranger zone, with bottom of the hole at 3,720 ft. This new well, which was brought in flowing through a 50/64-in. bean, was finished with an 8⅝-in. water string which was cemented at 3,035 ft. and again through perforations at 965 ft. and 710 ft. of 5¾-in. liner landed on bottom and carrying perforations at 3,010-98 ft., 3,175-3,270 ft., 3,410-3,610 ft., 3,650-3,720 ft. and 3,690 ft. of 2½-in. tubing with a packer at 2,950 ft.

Long Beach Oil Development Co. completed two wells in the Wilmington field. No. 10-W-X, however, may require some additional corrective work as the initial production of 100 bbl. from the upper Terminal zone and 125 bbl. from the lower Terminal zone, is lower than anticipated and production from the lower Terminal zone shows a cut of 20 per cent. This well was brought in flowing through a 16/64-in. bean from the upper Terminal zone and through an 18/64-in. bean from the lower Terminal zone. Bottom of the hole is at 4,094 ft. and the well was finished with an 8⅝-in. liner landed at 4,085 ft. and cemented through perforations at 3,008 ft., 3,640 ft. and at 4,005 ft. Perforations were at 2,445-2,795 ft., 3,008-3,620 ft., 3,640-3,960 ft., and 4,005-85 ft. The 4,069 ft. of 2½-in. tubing had a packer at 2,803 ft. No. 8-Z, of Long Beach Oil Development Co., which is operating tidelands for the city of Long Beach, was finished flowing 125 bbl. of 18.3-gravity oil cutting 2 per cent daily from the plugged-back depth of 2,824 ft. No. 1-A Harbor, of Padreson Oil Co., has been completed flowing 160 bbl. of relatively clean 14.3-gravity oil per day through a 36/64-in. bean from the Ranger zone with bottom of the hole at 3,431 ft. It was finished with 326 ft. of gravel-packed 6⅝-in. liner landed on bottom and including perforations at 3,131-3,431 ft. The 3,405 ft. of 2½-in. tubing contained a packer at 2,591 ft.

Coalinga

Two more excellent wells have been completed in the Southeast Coalinga field of Fresno County and a check of development work indicates that several additional good wells should be completed within the next 2 weeks. No. 2-B Cagle, of Superior Oil Co., in Section 6-20-16, was brought in flowing 1,307 bbl. of 27.4-gravity oil and 715,000 cu. ft. of gas per day from 8,164 ft. and No. 86-12-C of R. S. Lytle in Section 12-20-15, was completed flowing 1,998 bbl. of clean 34.1-gravity oil and 1,412,000 cu. ft. of gas daily from 6,892 ft. Both of these new wells were completed in the prolific Gatchell zone. No. 88-12-C, of R. S. Lytle, was finished with an 8⅝-in. water string cemented at 6,679 ft. and 253 ft. of 6⅝-in. liner landed at 6,892 ft. and perforated at 6,718-77 ft. and 6,814-72 ft. and 6,863 ft. of 2½-in. tubing. Top of the Kreyenhagen was cored at 5,442 ft., top of the glauconitic at 6,550 ft. and top and base of the productive Gatchell at 6,707 ft. and 6,867 ft., respectively. No. 2-B Cagle was completed with an 8⅝-in. water string cemented at 7,955 ft. and 232 ft. of 6⅝-in. drillable liner landed on bottom at 8,164 ft. and perforated at 7,953-8,164 ft. A total of 8,127 ft. of 2½-in. tubing completed the subsurface pipe. Top of the Kreyenhagen was logged at 6,711 ft., top of the glauconitic was cored at 7,920 ft. and top of the productive Gatchell was found at 7,955 ft.

Ventura Avenue

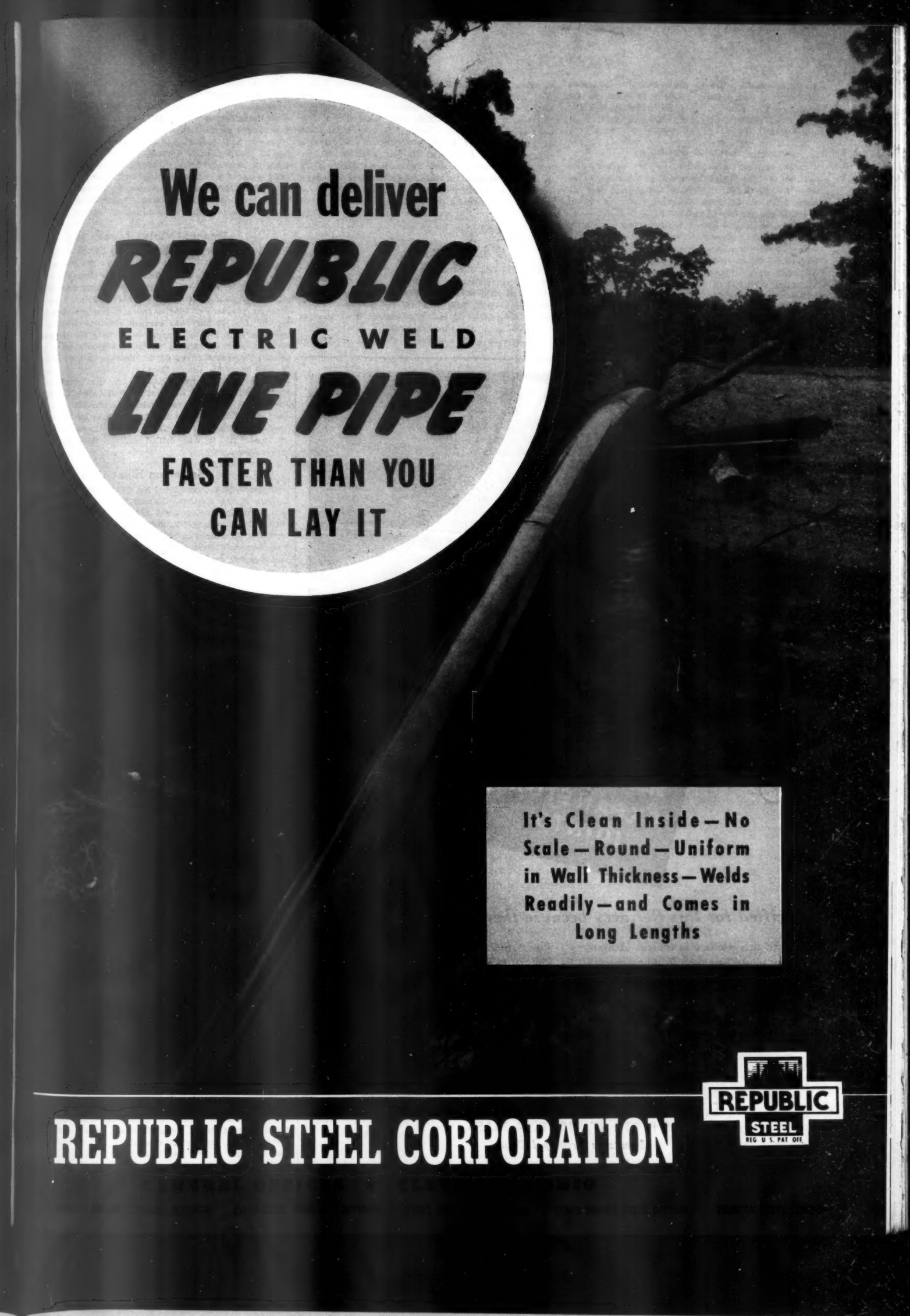
The list of highly productive completions in the Ventura Avenue field during the past 2 years was augmented by two more good wells when Shell Oil Co., Inc., completed No. 114 Taylor, flowing 3,260 bbl. of 31.7-gravity oil and 3,950,000 cu. ft. of gas daily from 7,100 ft. and No. 115 Taylor flowing 915 bbl. of 31.5-gravity oil and 1,800,000 cu. ft. of gas per day from 7,090 ft. The former showed a tubing pressure of 225 lb. and a casing pressure of 1,600 lb., and the latter showed 200 lb. on the tubing and 700 lb. on the casing. Both wells are in the south-central part of the Taylor lease and were completed in the upper zone. No. 114 Taylor was finished with a 7⅝-in. water string cemented at 6,005 ft. and a 5½-in. liner, and No. 115 Taylor was finished with a 7⅝-in. water string cemented at 5,647 ft. and a 5½-in. liner landed at 7,087 ft. The Ventura Avenue field has yielded a number of excellent flowing wells in the past 2 years,

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	April 7		March 31			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic—						
Crude oil	.....	.....	72,220	10,317	72,220	185,791
Fuel oil	.....	.....	.....	.....	152,798	450,002
Diesel and gas oil	.....	.....	.....	.....	.....	163,501
Gasoline	.....	.....	202,999	29,000	751,841	353,966
Kerosene	.....	.....	.....	.....	.....	122,200
Foreign exports—						
Crude oil	64,066	9,152	417,110	59,587	3,558,794	3,888,621
Fuel oil	127,874	18,268	178,639	25,520	2,025,508	2,274,717
Diesel and gas oil	80,769	11,538	164,974	23,568	1,761,766	1,463,123
Gasoline	172,284	24,612	82,030	11,719	1,425,963	2,143,567
Kerosene	25,513	3,645	9,678	1,383	313,986	529,725
Lubricants	.....	.....	.....	.....	40,698	42,034
Coastwise-domestic—						
Crude oil	261,393	37,342	110,141	15,734	2,762,202	3,083,955
Fuel oil	220,622	31,517	413,603	59,086	4,096,584	2,445,575
Diesel and gas oil	106,446	15,207	53,684	7,669	882,701	738,740
Gasoline	558,380	79,769	442,751	63,250	4,155,581	3,682,123
Kerosene	4,333	619	5,083	726	125,332	129,005

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Fuel oil	.....	.....	.....	.....	68,740	.....
Diesel and gas oil	.....	.....	.....	.....	281,280	69,550
Asphalt	.....	.....	.....	.....	73,200	74,746
Lubricants	.....	.....	.....	.....	7,606	4,170
Foreign exports—						
Crude oil	.....	.....	407,614	58,231	1,065,949	1,374,050
Fuel oil	.....	.....	41,937	5,991	324,689	805,999
Diesel and gas oil	.....	.....	61,576	8,797	598,575	434,898
Gasoline	.....	.....	97,083	13,869	559,153	893,813
Kerosene	.....	.....	18,070	2,581	102,929	269,339
Lubricants	.....	.....	3,686	527	94,517	163,196
Other finished oil	.....	.....	.....	.....	250	120
Coastwise-domestic—						
Fuel oil	155,086	22,155	74,915	10,702	1,686,504	1,672,949
Diesel and gas oil	10,212	1,459	9,127	1,304	327,364	222,031
Gasoline	169,160	24,166	88,455	12,636	2,018,731	1,518,534
Kerosene	9,755	1,394	3,313	473	159,843	191,656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due to aggressive work by Shell, Tide Water Associated Oil Co., Lloyd Corp. and British American Oil Producing Co. Lloyd Corp. spudded in No. 5 Lloyd early this week and has grade made for No. 1-A for future work.

Coastal District

Continental Oil Co. completed another large flowing well in the San Miguelito field of Ventura County when No. 15 Grubb, in Section 23-3-24, was finished, doing 2,240 bbl of cleon 30.3-gravity oil and 625,000 cu. ft. of gas per day from 6,525 ft. It flowed through two ¾-in. beans and showed a tubing pressure of 500 lb. and a casing pressure of 550 lb.. It was finished with a 7-in. water string cemented at 5,364 ft. and 1,201 ft. of 4½-in. liner landed at 6,524 ft. and including perforations at 5,364-6,524 ft. and a string of 2½-in. tubing with 932 ft. of 2-in. landed at 6,243 ft. All wells completed by Continental Oil Co. on the Grubb lease have been large flowing wells that show production characteristics similar to wells in the Ventura Avenue field, less than 1 mile to the east and on the same Ventura Avenue anticline. Union Oil Co. completed No. 4 Le Roy in the Santa Maria Valley field, and this new well was completed flowing 710 bbl. of clean 17.9-gravity oil per day through a 63/64-in. bean from 5,482 ft. This well was finished with an 8⅝-in. water string cemented at 5,064 ft. and 456 ft. of 6⅝-in. liner landed at 5,480 ft. and carrying perforations at 5,045-5,480 ft. and 5,044 ft. of 3-in. tubing. All wells in the Santa Maria Valley field, with the exception of those owned by three operators, are on steady production in conformity with an agreement approved a few weeks ago by all operators, and subsequently approved by marketing companies which have agreed to take a pro rata share of current production.

Canal

Ohio Oil Co., discoverer of the Canal field of Kern County, completed its eighteenth successful well in the Canal field when No. 18-E Kern County Land, in Section 13-30-25, was finished flowing 890 bbl. of clean 36.3-gravity oil and 1,541,000 cu. ft. of gas per day through a 36/64-in. bean from a depth of 8,245 ft. This new well, which showed a tubing pressure of 500 lb. and a casing pressure of 1,500 lb., was carried down to 8,287 ft., but was plugged back previous to completion. The hole was finished with a 7-in. water string cemented at 8,195 ft. and 88 ft. of 4½-in. liner landed at 8,243 ft. and carrying 100-mesh perforations at 8,188-8,243 ft. and 8,233 ft. of 2½-in. tubing. Top of the productive Stevens oil sand was cored at 8,176 ft. Completion of this well leaves the Canal field without a single drilling well and while Ohio Oil Co. will drill additional wells in this field in the near future, it will be another 2 or 3 weeks before any additional drilling is undertaken.

Tupman—Cole's Levee

Richfield Oil Corp. completed No. 72-33-B Kern County Land, in Section 33-30-25, in the Tupman section of the Cole's Levee field of Kern County, flowing 1,480 bbl. of clean 32.4-gravity oil and 1,000,000 cu. ft. of gas daily through a 96/64-in. bean behind a tubing pressure of 500 lb. and a casing pressure of 450 lb. No. 72-33-B was carried down to 9,480 ft., but was subsequently plugged back to 9,390 ft. and finished with an 8⅝-in. water string cemented at 9,047 ft. and 388 ft. of 6⅝-in. liner landed at 9,385 ft. and carrying perforations at 9,061-9,385 ft. and 9,350 ft. of 2½-in. tubing. Top of the productive Stevens oil sand was cored at 8,890 ft. Shell Oil Co., Inc., which attempted to develop commercial production around the edge of the field in Section 17-31-25, abandoned No. 81-17-B Kern County Land as dry at 10,449 ft. It was drilled entirely through the Stevens sand.

Kettleman Hills

Standard Oil Co. completed No. 83-27-Q on fee-owned acreage in the Kettleman North Dome field in Section 27-22-18, flowing 1,805 bbl. of 32.5-gravity oil, cutting 3 per cent and 1,200,000 cu. ft. of gas per day from the Temblor with bottom of the hole at 8,308 ft. This new well shows a tubing pressure of 1,225 lb. and a casing pressure of 1,300 lb. Top of the Brown shale was cored at 5,200 ft. and production was through 8,195 ft. of 2½-in. tubing. During the coming week Standard is scheduled to complete No. 72-19-J, in Section 19-21-17, which has been bottomed in the Eocene at 10,903 ft. and Kenda is scheduled to finish No. 34-22-Q, in Section 22-22-8, as drilling operations have been concluded at 7,775 ft.

San Joaquin Basin

In Section 34-28-27, in the east end of the old Kern River field, shore operators have revived drilling, after a lapse of many years Dick & Dore completed Nos. 24 and 28, and Helm & Smith completed No. 19. All are 5-bbl. wells from pays above 485 ft.

In the Midway-Sunset field of Kern County, Texas Co. completed No. 39 on Section 32-32-24, pumping 290 bbl. of very clean 23.2-gravity oil per day from 3,195 ft. Considering the age of this field this completion is far better than expected. The hole was finished with a 6⅝-in. water string cemented at 3,075 ft. and 180 ft. of 5-in. liner landed on bottom and carrying 120-mesh perforations at 3,073-3,195 ft. and 3,160 ft. of 2½-in. tubing.

Western Kentucky

(Continued from Page 70)

No. 1 George Baird, dry hole; Blue Lick water in McClosky lime at 1,942 ft., total depth 1,950 ft. Utica district: J. C. Ellis and Petroleum Co.'s No. 1 J. F. Leet, 65-bbl. well in Barlow sand at 1,383-1,422 ft., total depth 1,741 ft.; plugged back to 1,430 ft. H. E. Morgan and others' No. 1 C. H. Burke, dry hole through Barlow sand; total depth 1,424 ft. H. C. Farmer and others' No. 5 G. A. Nation, spudding in. W. K. Snyder and others' No. 5 Dr. A. A. Westerfield, dry hole; Blue Lick water in McClosky lime at 1,713 ft.; total depth 1,719 ft. Handyville district: J. C. Ellis and Petroleum Co.'s No. 2 L. N. Burns, 40-bbl. well in McClosky lime at 1,697-1,703 ft.; total depth 1,753 ft.

Hancock County, Saunders School district: W. J. Flesher's No. 4 Jane Saunders, moving in. Cloverport district: W. J. Flesher's No. 5 William Snyder, moving in.

McLean County, South Livermore district: W. E. Hupp and others' No. 2 J. F. Smith, dry hole through Jett sand at 1,202 ft., drilling deeper. Bealer's Knob district: O. D. Vickers and others' No. 4 C. S. Vickers, spudding in.

Ohio County, Fordsville district: Mecca Oil Co. and

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others' No. 4 Betty Cullen, dry hole through Jett sand. Frank Randall and others' No. 2 Kissinger, spudding in. Adaburg district: Leeper Oil Co.'s No. 10 E. Ford, 55-bbl. well in Jett sand 699-729 ft., total depth 730 ft.

EASTERN KENTUCKY

ASHLAND, Ky., Apr. 15.—Ten gas wells were reported completed in last week's roundup of field operations in eastern Kentucky. Two other wells were completed but production data was not available. The initial production of the 10 new gas wells aggregated 2,183,000 cu. ft., as follows:

Warfield Gas Co.'s No. 4868 Lutitia Hayes, on Right Fork of Troublesome Creek in Knott County, 152,000 cu. ft. of gas, total depth of 2,811 ft., in Big lime.

Warfield's No. 4869 T. J. Hardin No. 1 tract on Rockhouse Fork in Martin County, total depth 2,760 ft., in shale, making 219,000 cu. ft. of gas.

Warfield's No. 4871 A. D. Speer and others' on Coldwater Fork in Martin County, total depth 2,710 ft., in shale, 710,000 cu. ft. of gas.

United Carbon Co.'s No. 822 Republic Steel tract on Dry Fork in Pike County, total depth 4,302 ft., in shale, 100,000 cu. ft. of gas.

United Carbon's No. 823 Charley Ford tract No. 1 on Biggs Creek in Pike County, total depth 3,923 ft., in shale, 245,000 cu. ft. of gas.

Hamilton Gas Co.'s No. 82-D James Hatcher land, on Ivy Creek in Floyd County, total depth 2,915 ft., 103,000 cu. ft. of gas.

Rockcastle Gas Co.'s No. 1 J. E. Chapman land on Buffalo Horn in Martin County, completed at 2,722 ft., in shale, 215,000 cu. ft. of gas; No. 3 J. W. Hall tract on Rock Creek in Lawrence County, total depth 2,467 ft., in shale, 133,000 cu. ft. of gas.

Whitis and others' No. 1 Dempsy heirs land on Tug Fork in Martin County, total depth 2,727 ft., in shale, 251,000 cu. ft. of gas.

Sturgill Gas Co.'s No. 1 Kate Weddington land on the Left Fork of Toler Creek in Floyd County, total depth of 3,125 ft., in shale, 55,000 cu. ft. of gas.

Knott County: Warfield Gas Co. is down 2,140 ft. in Black lime in No. 4867 T. A. Martin No. 1 on Bates Creek in Knott County. Hamilton Gas Co. cemented cave at 1,965 ft. in No. 17-E Reuben Short, on the Right Fork of Troublesome Creek. Inland Gas Corp. was drilling at 2,796 ft. in Brown shale in No. 212 W. H. Smith and others' land on Perkins Branch. Hamilton Gas Co. reports total depth of 3,041 ft. in No. E-18 Lindsey Amburgy, on Troublesome Creek, but completion data is not available. Hamilton Gas Co. is drilling at 1,300 ft. in No. D-85 James Hatcher on Troublesome Creek. Kentucky-West Virginia Gas Co. is down 2,780 ft. in Sunburg shale in No. 582 B. F. King, on Joe King Branch, and has a bad hole in No. 584 on the Jeffie Hall land on Isaac Fork of Right Beaver Creek. The same concern is drilling at 1,630 ft. in lime in No. 5264 W. H. May, on Long Branch of Jones Fork.

Martin County: Warfield Gas Co. was drilling at 1,985 ft. in slate and shells in No. 4870 David Ward No. 1, on Hogden Run, Virginian Gas & Oil Co. made a location for No. V-1269 on the Federal Gas-Oil Co. land on Coldwater. The same concern completed No. 1281-V on N. Jane Cassaday, on Little Rockcastle, but completion data was not available. The same company is building road to No. V-1283 W. H. Blankenship, on Little Rockcastle. Whitis and others were drilling at 895 ft. in No. 2 Dempsy heirs, on Tug Fork. Kentucky-West Virginia Gas Co. was drilling at 2,120 ft., in sand, in No. 583 Wilson Short, on Rockcastle, and is moving to No. 5265 J. G. Carlisle on Cassady Branch.

Floyd County: Kentucky-West Virginia Gas Co. is down 1,633 ft. in Maxon sand in No. 585 A. C. Webb, on Sanson Fork of Prater Fork, and is drilling at 690 ft. in slate in No. 586 Levi Mitchell land on Mitchell Branch of Mud Creek. The same company had reached 135 ft. in slate in No. 587 John Campbell, nearby, and is down 2,325 ft. in slate and shells in a deepening operation in No. 5253 George McKinney land on Deadening Fork of Toler Creek. Kentucky-West Virginia Gas Co. is rigging up No. 5262 W. R. Hall, on Jacks Fork of Left Beaver, and made a location for No. 5263 James Sturgill, on Keathley Branch of Toler Creek. The same company is down 1,673 ft., reaming, in a deepening operation in No. 250 Charles Goble land in the same district.

Pike County: Columbian Fuel is skidding rig at No. 838 Tierney Land Co., on Stratton Fork, and is working at 1,800 ft. in Black lime, having cemented cave in No. 839-GW J. S. Cline on B. Compton Branch.

OHIO

NEWARK, Ohio, Apr. 15.—Seven dry holes, four gas wells and two oil wells were accounted for last week in Ohio fields covered by this report. There have been no material changes in the deep tests. Completions for the week follow:

In Cuyahoga County, Mayfield Village, Benedum-Trees, Inc.'s No. 1 W. F. Sorter, Lot 26, is dry through the Clinton sand to 3,386 ft.

Three dry Berea completions were reported in Center Township, Guernsey County, Section 14: Jewell Co.'s No. 1 Homer Davidson, depth 1,411 ft.; Hayes Ferguson's No. 1 Clark Braden, depth 1,225 ft.; H. P. Muhlback and others' No. 1 D. W. Fairchild, depth 1,398 ft. In Wills Township, Binda Co.'s No. 1 Otis Foraker, Section 16, was dry in the Berea, depth 1,339 ft.

In Knox County, Howard Township, H. E. Perkins' No. 1 L. Britton, Lot 3, third quarter, is a gas well good for 1,980,000 cu. ft. open flow in Clinton sand, depth 2,586 ft.

In the Newark field, Licking County, Heisey Gas Co. has 800,000 cu. ft. of gas open flow from Clinton sand in its Broadway Manor Addition test in the fourth quarter of Newark Township, sand 2,319-44 ft. Wittmer Co.'s No. 1 Cary Pound in the southeast corner of the fourth quarter of Newton Township, had a showing of gas in the Clinton, abandoned at 2,635 ft.

In Perry County, Clayton Township, Dittoe and others' No. 2 C. A. Beecham, Section 17, is good for 250,000 cu. ft. of gas open flow and 3 bbl. of oil after a shot in Clinton sand at 3,279-3,317 ft. C. Z. Ruth in Monroe Township, on the Edgar Denman estate, made 4 bbl. of oil the first day after a shot in Berea at 1,151-72 ft.

In Stark County, Plain Township, East Ohio Gas Co.'s No. 1 Joseph J. Linder, Section 14, gaged 600,000 cu. ft of gas open flow from Clinton sand at 4,620-32 ft.

In Washington County, Liberty Township, Burkhart Oil & Gas Co.'s No. 4 Walter Hall, Section 4, is a small well making 30,000 cu. ft. of gas open flow and 1 bbl. of oil in the Berea, depth 2,072 ft.

In Wayne County, Milton Township, East Ohio Gas Co.'s No. 1 Anton Schwartz, Section 3, is dry through the Clinton sand to 3,627 ft.

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Southwest Texas District

New Pool in Victoria County In Relatively Shallow Sand

By
F. L. SINGLETON

CORPUS CHRISTIE, Tex., Apr. 15.—The discovery of a field in Victoria County, testing of several wildcats and scattered outpost wells, held the attention of operators in the Southwest Texas district.

Colton & Colton's No. 1 Mahon and Buehler, 2½ miles northwest of the town of Telferner, Victoria County, is flowing an estimated 2½ bbl. of pipe-line oil per hour while cleaning out through a 3/16-in. choke, with tubing pressure 960 lb. and casing pressure 1,050 lb. Oil sand was cored the previous week at 2,693-98 ft., total depth, and the well was completed with 7-in. casing cemented at 2,696 ft.

The discovery well is situated in I.R.R. Survey 27, just south of the Telferner gas field. Location for a northwest offset is reported to have been made, and additional locations are expected to be announced at an early date. In the same area and 2½ miles southwest of the Cologne field, Colton & Colton staked location for No. 1 Mrs. Etta Terrell in J. B. Sideck Survey. The well is being drilled on a farmout lease from Arkansas Fuel Oil Co.

In the same county and in the McFaddin field, Barnsdall Oil Co. opened production from a new sand with the completion of No. 2-B J. McFaddin. The well was drilled to a total depth of 7,247 ft., and production was obtained by perforating casing at 6,350-57 ft. On an early gage, the well was flowing at the rate of 130 bbl. of 37.9-gravity oil per day through a ¼-in. choke. Location is 933 ft. west of No. 1-B McFaddin in the C. M. Boyd Survey.

Barnsdall Oil Co.'s No. 2 Fagan, the second well drilled in the Fagan field, Refugio County, was abandoned as a dry hole at a total depth of 6,155 ft. Approximately 2½ miles northwest of the field in the Edward Perry Survey, H. J. Porter and others' No. 1 R. H. Morros, was abandoned at a total depth of 7,331 ft.

Approximately 3 miles southwest of Sinton, Texas Gulf Producing Co. was scheduled to test No. 1 San Antonio Loan & Trust Co., a prospective pool opener in the M. McAuley Survey. The well was drilled to 7,537 ft., and 5½-in. casing was cemented preparatory to testing sand at 6,662-72 ft., where a recent drill-stem test recovered an unestimatel amount of distillate and several hundred pounds of working pressure.

North of the town of Odem, San Patricio County, Fred M. Wood and others' No. 1 C. E. Hart, which has been in the process of completion for several weeks, is reported flowing 3 bbl. of oil per hour while testing through perforated casing at 6,901 ft. and 6,910-21 ft. In the East Mathis field Seaboard Oil Co. was preparing to retest No. 1 W. E. Lovett after the well showed salt water on a production test through perforated casing at 5,613-18 ft. The well was drilled to 5,695 ft., and 5½-in. casing was cemented at 5,645 ft.

In the Wade City field, Jim Wells County, Rodney De Lange's No. 5 McNeil, topped sand showing oil at 4,917 ft., and the company is preparing to test after drilling to a total depth of 4,952 ft. Henshaw Brothers' No. 1 McNeil, north of production has been completed as a gas well in the 4,700-ft. horizon after drill-stem testing in the 4,900-ft. sand recovered salt water.

Approximately 1½ miles north of the Alice field Frank Gravis' No. 1 Forry is shut down for orders at a total depth of 5,740 ft. Shaly sand with a gas odor was cored at 5,295-97 ft.; sand with a slight odor of oil at 5,297-5,310 ft. and 10-minute drill-stem test at 5,295-5,301 ft. recovered 60 ft. of slightly cut drilling mud. Small amount of oil sand was recovered in a core at 5,308-13 ft., and a 12-minute drill-stem test at 5,306-13 ft., tested 41 lb. of working pressure and recovered 350 ft. of pipe-line oil and 750 ft. of salt water.

Humble Oil & Refining Co.'s No. 1 Duncan, 1 mile southwest of the Flour Bluff field, Nueces County, was abandoned as dry at a total depth of 8,050 ft. The company is preparing to spud No. 1-D State in Laguna Madre Bay, located on the down-throw side of a fault, and the company plans to drill the well to a depth of 10,000 ft.

Sun Oil was testing two interesting wells in Starr County. Southwest of the Sun field, No. 1 Lehr, Section 51, is testing at 4,832-40 ft., while 3 miles southwest of the Kelsey field and 5 miles northeast of the Sun field, No. 1 Rodriquez is bottomed at 7,502 ft., and the well is being tested through perforated casing at 6,434-39 ft.

Atlantic Refining Co.'s No. 1 Conwell, completed the previous week as the first Tertiary Wilcox producer in Southwest Texas, was gaged through the separator, and the well flowed 20 bbl. of 52.3-gravity distillate and 3,170,000 cu. ft. of gas in 6 hours through a ¼-in. choke. The well was placed on a ¼-in. choke on tubing and casing and in 3 hours flowed at the rate of 122 bbl. of distillate and 7,000,000 cu. ft. of gas per day. Production was obtained by perforating casing at 7,855-85 ft.

In the West Tuleta field, Bee County, Anderson-Prichard Oil Corp. and Mills Bennett Production Co., continue to test No. 2 D. E. Robinson, and the well is reported flowing from 2 to 3 bbl. of distillate and an unestimated amount of salt water per hour through a ¼-in. choke. Flowing pressure is 2,900 lb. The well is testing the Carrizo formation through perforated casing at 7,525 ft.

Sinclair Prairie Oil Co.'s No. 1 Callaghan ranch, a wildcat test in Webb County, is drilling in shale below 6,660 ft., while in the same county and located in the old Bruni field, Tide Water Associated Oil Co. staked location for No. 8 Bruni, 200 ft. southeast of the company's No. 7 Bruni, which blew out several months ago at a depth of 8,912 ft. Due to mechanical trouble, no test was ever made of the deep sand, and the well was plugged back and completed as a small producer in the Queen City formation at approximately 5,600 ft.

In Nueces County, about 1½ miles south of the South Clara Driscoll field, Wellington Oil Co. and Seaboard Oil Co. were cementing casing in No. 1 Swenson estate, after running an electrical survey to the total depth of 7,007 ft. Details of the survey were not available, but the pipe is expected to be cemented below 5,300 ft. to test sand at 5,300-22 ft., where a recent drill-stem test recovered 30 ft. of oil and 20 ft. of mud.

SOUTHWEST TEXAS COMPLETIONS IN PROVEN FIELDS

Bexar County

Eckert field: Beck & McDonald's No. 1 Gembler, 984 ft., dry and abandoned.

Caldwell County

Salt Flat field: Texas Co.'s No. 11 Merriweather, 2,704 ft., 199 bbl. oil, 40 bbl. water, pumping.

Aransas-San Patricio Counties

McCampbell field: Tom Graham Oil Co.'s No. 4-B McCampbell, perforated casing 7,326-30 ft., 25 bbl., jetting. Southern Minerals Corp.'s No. 4 McCampbell, perforated casing 7,140-45 ft., 124 bbl., 3/16-in. choke. Southern Minerals Corp.'s No. 1 Usher, perforated casing 7,143-47 ft., 98 bbl., 9/64-in. choke.

Duval County

Cedro Hill field: Humble Oil & Refining Co.'s No. 7-F Duval County Ranch Co., perforated casing 1,437-41 ft., 11 bbl., 15½ hours, 3/16-in. choke. Government Wells field: Magnolia Petroleum Co.'s No. 5 Hahl, 2,972 ft., dry and abandoned. Piedra Pintas field: Adelon Oil Corp.'s No. 1 Folor Oil Co., 1,071 ft., dry and abandoned. Rancho Solo field: Cox & Hamon's No. 1 Peters, perforated casing 1,790-98 ft., 65 bbl., 2 per cent water, pumping.

Jim Hogg County

Colorado field: C. Andrade's No. 1-D Trevino, sand 3,004-15 ft., 66 bbl., 3/16-in. choke.

Jim Wells County

Wade City field: Arkansas Fuel Oil Co.'s No. 1 McNeil, perforated casing 4,925½-33½ ft., 148 bbl. 15 hours, 3/16-in. choke. Rodney De Lange and others' No. 4 McNeil, perforated casing 4,926½-34 ft., 373 bbl., 3/16-in. choke.

McMullen County

South Callihan field: Morris Drilling Co.'s No. 2 Claunch, 1,020 ft., dry and abandoned. Morris Drilling Co.'s No. 2 Mier, 1,012 ft., gas well.

Nueces County

Minnie Bock field: Windsor Oil Co.'s No. 3 Howze, perforated casing 3,812-19 ft., 86 bbl., ½-in. choke.

Refugio County

Tomoconnor field: Quintana Petroleum Corp.'s No. 20-A Williams, perforated casing 5,882-90 ft., 617 bbl., ¼-in. choke.

San Patricio County

East White Point field: Easterwood Production Co.'s No. 1 Low, perforated casing 5,607-14 ft., 45 bbl., 5/64-in. choke.

Starr County

Rincon field: W. R. Davis and Co.'s No. 11-B Slick, perforated casing 3,972-88 ft., 170 bbl., ¼-in. choke. W. R. Davis' No. 16-B Slick, perforated casing 4,252-57 ft., 300 bbl., ¼-in. choke. W. R. Davis and Co.'s No. 18-B Slick, 4,225 ft., dry and abandoned.

Victoria County

Heyser field: Gulf Oil Corp.'s No. 33-B Traylor, perforated casing 5,493-97 ft., and 5,485-90 ft., 62 bbl., ½-in. choke.

Webb County

Adami field: Arkansas Fuel Oil Co.'s No. 8-B Adami, sand 987-96½ ft., 15 bbl. oil and 10 bbl. salt water, pumping. Volpe field: Magnolia Petroleum Co.'s No. 30 Volpe, sand 2,480-88 ft., 150 bbl. pumping.

Zapata County

Comitas field: J. P. Nash's No. 35 Haynes, sand 1,136-51 ft., 11 bbl. oil and 3 bbl. water, pumping. Escobas field: Dulup Oil Co.'s No. 6 Garcia, 1,387 ft., dry and abandoned. Mirando Valley field: Buffalo Oil Co.'s No. 3-C Hinnant, 2,916 ft., dry and abandoned. Buffalo Oil Co.'s No. 30-Hinnant, sand 1,974½-85 ft., 50 bbl., 25/64-in. choke. Buffalo Oil Co.'s No. 51-C Hinnant, 1,882½ ft., 25 bbl., jetting. Interstate Minerals Inc.'s No. 42 Lopez, sand 1,826-38 ft., 80 bbl., pumping.

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North Louisiana, Arkansas

By
GEORGE WEBER

Outposts in New Olla Area Not Testing Encouragingly

SHREVEPORT, La., Apr. 15.—The Olla and Bull Bayou, North Louisiana, fields figured in the week's news of the tristate area, and the Fouke pool in Miller County, Arkansas, retained attention with deeper drilling and the beginning of outpost activity. New wildcats of importance were staked and begun in Harrison and Cass counties, East Texas border and Claiborne Parish, Louisiana.

Little success has been met in the effort to extend the newly discovered Tertiary Wilcox production at Olla, east of Urania, in La Salle and Caldwell parishes. During the past week the deep wildcat, H. L. Hunt and Arkansas Fuel Oil Co.'s No. 1 Goodpine, which drilled to a total depth of 8,997 ft. and plugged back to test more shallow sections, produced 8 bbl. of fluid per hour through a 27/64-in. choke, consisting of 15 per cent water. Tubing pressure was 275 lb. Over night it flowed about 15 bbl. of fluid hourly, and the water fraction rose to 99 per cent. Perforation points were squeezed off and casing reperforated at 2,388-90 ft., but only water was recovered. Operators resqueezed and are continuing to test.

Placid Oil Co.'s No. 10 Louisiana Central took sidewall cores at 3,880 ft. and set casing for a test at 2,650 ft. The same operator's No. 11 Louisiana Central had derrick pulled in while at a total depth of 2,100 ft. and is being rebuilt. Two additional locations were staked by Placid on the same lease, but these will await completion of the current two tests.

An outside operator, of which there will be few in the closely held area, is E. F. Neely, who is rigging up No. 1 Lizendy in Section 19-10-3. To the north in Caldwell Parish, Arkansas Fuel Oil Co. has taken sidewall cores in No. 1 Louisiana Central at 2,200-3,600 ft. After cementing 5½-in. casing at 3,653 ft. in the workover wildcat, perforations were shot at 3,540-45 ft. and drilling mud and salt water were the results. Subsequent perforations at 3,315-20 ft. and 2,850-55 ft. in the Wilcox showed salt water.

Mild interest was shown in a Bull Bayou test, Watts Oil & Gas Co.'s No. 1 Frank Grocery Co., NE cor. NW Section 35-12-11, De Soto Parish. With 6-in. casing set at 2,503 ft., and bottomed at 2,634 ft., the crew ran liner with the bottom 320 ft. perforated, and at latest reports the well was swabbing an average of 25 bbl. of fluid daily, showing some salt water. This is the first operation of any interest in the Bull Bayou sector in many months. Early reports that the well flowed in excess of 300 bbl. daily could not be verified. The test is near Evelyn. It is producing from sand in the range of 2,503-2,634 ft.

Another wildcat failure was marked up for northeastern Louisiana this week when Gulf Refining Co. abandoned No. 1 Sondheimer in Section 33-18-12, Madison Parish.

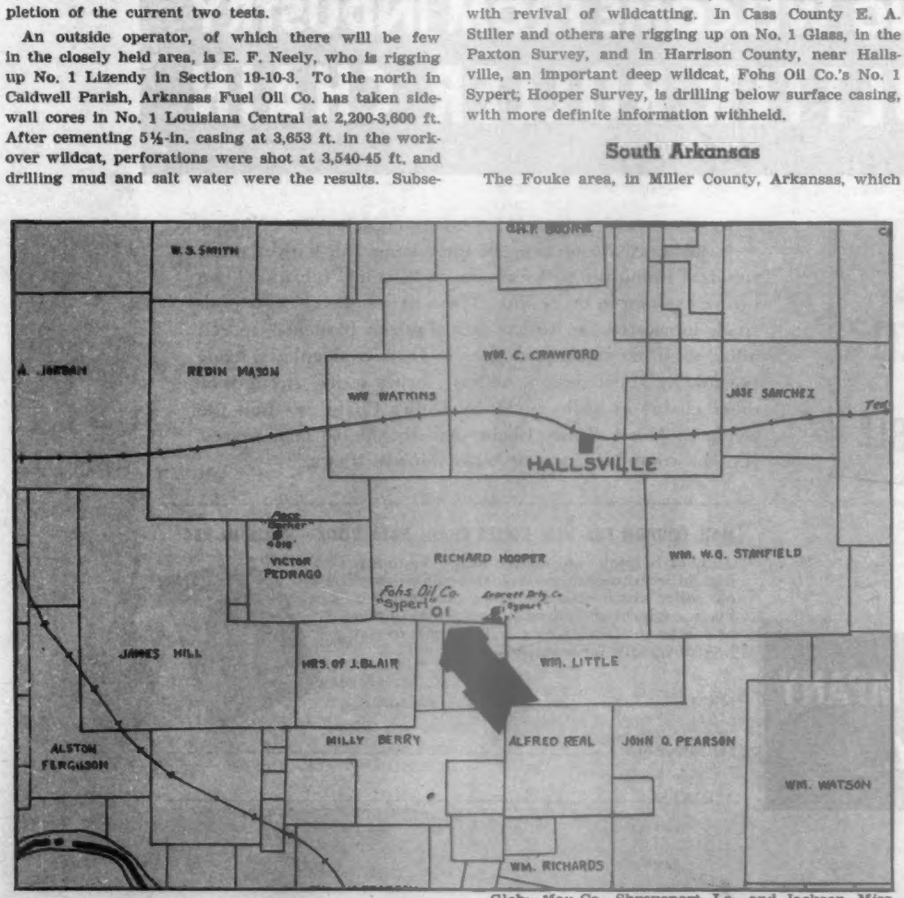
New wildcat interest is shown in the deep test which Ohio Oil Co. and others have staked near Haynesville, in Claiborne Parish. The wildcat, No. 15 Taylor Account No. 1, in Section 15-23-8, will begin moving in materials shortly. This will be a lower Marine test. In the same area, Tiki Exploration Co.'s No. 1 Moss is drilling below 4,790 ft.

East Texas Border

Cass and Harrison counties, Texas, drew attention with revival of wildcatting. In Cass County E. A. Stiller and others are rigging up on No. 1 Glass, in the Paxton Survey, and in Harrison County, near Hallsville, an important deep wildcat, Fohs Oil Co.'s No. 1 Sypert, Hooper Survey, is drilling below surface casing, with more definite information withheld.

South Arkansas

The Fouke area, in Miller County, Arkansas, which is productive of commercial oil according to indications on tests of the deep Standard Oil Co. of Louisiana's No. 1 Sturgis, still holds interest. During the week the well, which is drilling lower formations, encountered no further shows of oil and was bottomed below 7,182 ft. in lime at latest reports. A 1¼-mile south outpost, F. B. King and others' No. 1 Philyaw, was announced late in the week for early drilling.



Globe Map Co., Shreveport, La., and Jackson, Miss.

Fohs Oil Co.'s No. 1 Sypert, a Harrison County wildcat near Hallsville, Tex., will test the Paluxy formation, expected at about 4,500 ft. The operators have set surface casing and are drilling ahead

Production by Pool

Estimated daily gross production all companies week ended April 12:

NORTH LOUISIANA

	Barrels
Bellevue	475
Caddo light	5,190
Caddo heavy	2,205
Converse	500
Cotton Valley	*14,970
Cross Lake	4,455
De Soto and Red River	960
Elm Grove	310
Haynesville	2,730
Holly	65
Homer	2,780
Lisbon	5,600
Olla	225
Pleasant Hill	90
Rodessa	21,185
Sarepta-Carterville	†350
Sligo	1,840
Sugar Creek	630
Urania	2,820
Zwolle	1,905
Total North Louisiana	69,335

SOUTH ARKANSAS

Atlanta	920
Big Creek	5
Buckner	1,695
Champagnolle	1,150
Dorcheat	1,415
El Dorado	1,650
Lewisville	700
Lisbon	215
Magnolia	20,000
Miller County	285
Nevada	555
Nick Springs	110
Rodessa	2,330
Schuler	18,500
Smackover light	1,700
Smackover heavy	13,840
Stephens	525
Troy	1,275
Urbana	910
Village	1,150
Total South Arkansas	68,930

Rodessa Texas 21,105 bbl.

*4,285 bbl. is distillate.
†95 bbl. is distillate.

NORTH LOUISIANA COMPLETIONS

Caddo—Caddo Parish

Beaudon & Griffin's No. 1 Davidson, Section 26-21-16, pumping 50 bbl., 50 per cent salt water, total depth 931 ft. R. L. Bornitz' No. 4 Ramsey, Section 32-21-15, pumping 48 bbl., total depth 1,583 ft. Burnham Drilling Co.'s No. 6 Wilkinson, Section 33-22-16, tested dry at 2,440 ft. and 2,472 ft., dry and abandoned. Lloyd Farr's No. 5 Stiles, Section 17-21-16, pumping 15 bbl. of oil and 25 bbl. of salt water, total depth 1,025 ft. Magnolia Petroleum Co.'s No. 32 Dillon, Section 24-21-15, pumping 5 bbl. of oil and 15 bbl. of salt water, total depth 1,456 ft. J. S. Pate's No. 1 Querbes, Section 18-21-15, tested salt water and abandoned, 2,440 ft. Roy L. Reese's No. 1 Norman, Section 1-20-16, pumping 100 bbl., total depth 1,530 ft. Texas Co.'s No. 8 Caddo fee, Section 7-20-15, pumping 52 bbl., used 4,000 gal. acid, total depth 1,495 ft.

Bull Bayou—De Soto Parish

Watts Oil & Gas Co.'s No. 1 Frank Grocery Co., 338 ft. south, 450 ft. west of NE cor. NW Section 35-12-11, total depth 2,634 ft., set 6-in. casing 2,503 ft., swabbed 25 bbl., some salt water.

(Continued on Page 92)

Kansas Developments

By
DAL DALRYMPLE

Big Increase in Field Work; Iuka Pool Extended Eastward

Operators in the Kansas field continued to extend their activities the past week, more than 60 new tests in proven and wildcat areas being reported. In addition there were the usual extensions and discoveries that are considered customary in Kansas and several large producers were completed.

The Iuka pool in Pratt County was extended ½ mile eastward at Magnolia Petroleum Co.'s No. 1 Beck, C W½ NW NW Section 12-27-13w. It swabbed 156 bbl. of oil in 24 hours from Simpson dolomite at 4,295 ft., total depth, averaging 8 bbl. an hour the last 8 hours of the test. Tubing was being run preparatory to acidizing and completing.

Pigott, Johnston and B. B. & M. Oil Co.'s No. 2 Krier, NE SE Section 30-16-11w, found Topeka lime productive of both oil and gas to give the Krier pool, Barton County, a new zone. It averaged 8 to 10 bbl. of oil an hour from Topeka lime at 2,845-54 ft., and after drilling to 2,955 ft. in that formation gas estimated at 20,000,000 to 30,000,000 cu. ft. was found. The Topeka pay was cased off and operators drilled deeper. Lansing lime was topped at 3,030 ft. and the well was reported flowing 40 to 50 bbl. of oil an hour, with an estimated 10,000,000 cu. ft. of gas from that horizon. This pay also was due to be cased off and drilling resumed, with Basal sand as the goal.

George W. Hinkle and others' No. 1 Kroutwurst, CNL NE SE Section 34-16-11w, wildcat northeast of the Kraft pool, Barton County, made initial potential of 250 bbl. of oil from Arbuckle lime at 3,394-3,402 ft., total depth, and was completed as a minimum well.

New outpost tests include: Holl & Ackley's No. 1 Wilkens, NW NE Section 28-18-6w, northeastern Rice County; Frank H. Hollow's No. 1 Barth, CEL NE Section 16-17-11w, on a Carter Oil Co. farmout northeast of the Kraft pool, Barton County; Rufus Clay's No. 1 Bahr, CWL SW SE Section 27-18-15w, northeast of the Otis-Albert area, Barton County; Pope & Kline's No. 1 Campbell, C N½ NW SE Section 11-19-15w, north of the Kruckenberg area, Barton County; H. A. Long's No. 1 Riedel, CEL NE NE Section 4-18-14w, southwest of the Hoisington area, Barton County; Stanolind Oil & Gas Co.'s No. 1 Judd, C SE SE Section 15-21-38w, Kearny County, about 25 miles west of the Nunn pool in Finney County; Sheridan & Barwick's No. 1 Warren, CWL NW NW Section 18-35-6, southeast of the Rahn pool, Cowley County; Zephyr Drilling Co.'s No. 1 Russell, C NW SE Section 19-30-5, east of the Rock pool, Cowley County; W. G. Gaddis' No. 1 Shannon, CEL SE SE Section 11-27-10w, east of the abandoned Shepherd area, Kingman County. Stanolind Oil & Gas Co.'s No. 1 Heferman, C N½ NW NE Section 4-15-13w, south of the Hall pool, Russell County; Kerlyn Oil Co.'s No. 1 Wise, C SE SW Section 28-12-20, Douglas County.

Russell County

Texon Oil Co.'s No. 3 Lipprand, C E½ NE NW Section 35-14-13w, Hall pool, Russell County, had Lansing lime at 2,808-61 ft., total depth, pumped 406 bbl. of oil in 8 hours and made potential of 1,219 bbl.

Stearns and others' No. 4-C Olson, C W½ SE NW Section 27-14-14w, Gurney area, had Lansing lime at 2,933-44 ft., total depth. It flowed 250 bbl. of oil in 8 hours; was acidized, pumped and flowed 1,278 bbl. in 8 hours and made daily potential of 3,836 bbl. Gas was estimated at 5,000,000 cu. ft.

Stanolind Oil & Gas Co.'s No. 2-B Michel, C N½ N½ NW Section 36-14-14w, flowed and pumped 693 bbl. of oil in 8 hours, with 2,000,000 cu. ft. of gas, and made potential of 2,079 bbl. of oil. It had Lansing lime at 2,870-2,918 ft., total depth.

Shell Oil Co.'s No. 2-A Schmitt, C N½ N½ SW Section 15-14-15w, Gorham area, had pay at 3,264-70 ft., total depth, swabbed 194 bbl. of oil in 4 hours and made daily potential of 2,072 bbl.

C. B. Davis' No. 3 Gaynor, C S½ SW NW Section 19-13-14w, Atherton pool, found Arbuckle lime at 3,180-92 ft., total depth, and was completed for top allowable potential of 3,000 bbl. of oil daily.

Skelly Oil Co.'s No. 9 Rein, C N½ NE SE Section 8-15-13w, Coralena pool, was acidized, flowed 702 bbl. of oil in 8 hours, making daily potential of 2,106 bbl. of oil, with 650,000 cu. ft. of gas. Lansing lime was found at 3,013 ft., total depth 3,234 ft.

Stanolind Oil & Gas Co.'s No. 7 Roesner, C S½ NE SW Section 9-15-13w, topped Lansing lime at 3,032 ft., total depth 3,359 ft., was acidized, pumped 536 bbl. of oil in 8 hours and made potential of 1,608 bbl. daily, with 500,000 cu. ft. of gas.

Cities Service Oil Co.'s No. 7 Podzus, C E½ E½ SW Section 25-15-14w, Trapp field, drilled Arbuckle lime at 3,306-12 ft., total depth, pumped 133 bbl. of oil in 8 hours and made daily potential of 399 bbl.

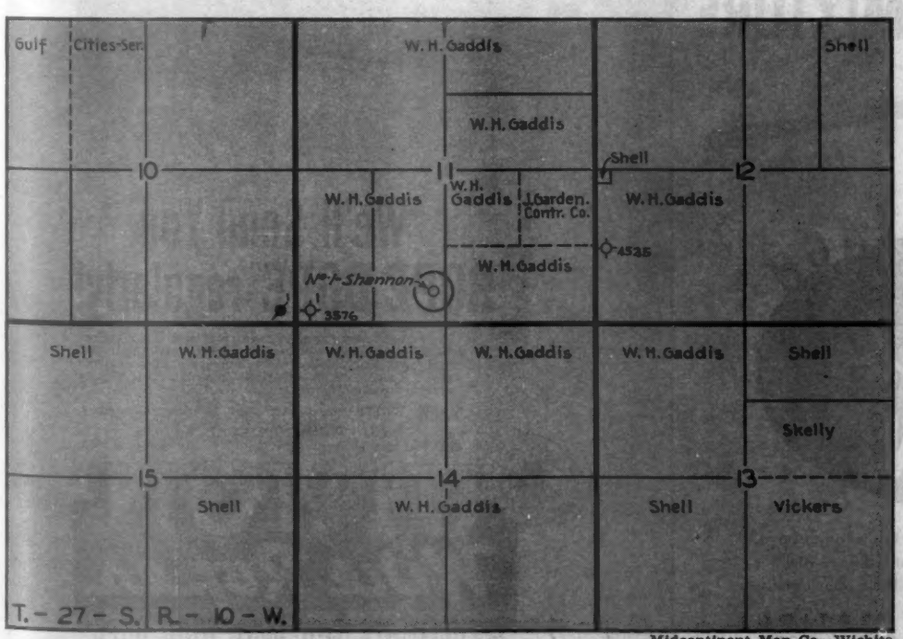
Same company's No. 3-C Bender, C E½ W½ NE Section 26-15-14w, was acidized and potential was calculated at 1,135 bbl. of oil, from Arbuckle lime at 3,341-66 ft., total depth.

Other wells recently completed in Russell County: W. C. McBride, Inc.'s No. 1 Gregg, NE NE SE Section 24-13-15w, total depth 3,227 ft., 450 bbl. of oil; Skelly Oil Co.'s No. 1 Hickey, C N½ NW NW Section 30-14-13w, total depth 2,893 ft., 1,386 bbl. of oil; Cities Service Oil Co.'s No. 4 Hennesey, C N½ S½ SE Section 26-15-14w, Trapp area, total depth 3,364 ft., 898 bbl.; Coralena Oil Co.'s No. 1 Hinderliter, C W½ SW SW Section 28-15-13w, total depth 3,352 ft., 2,460 bbl.

Estimated Daily Production

Estimated daily production for Kansas for the week ended April 13, and for the preceding week was as follows:

	Barrels	
	Apr. 13	Apr. 6
Oxford City	700	700
Burrton	8,350	9,200
Ritz-Canton	4,100	4,100
Graber	2,750	3,100
Hollow-Nikkel	1,800	1,800
Lerado	1,050	1,000
Voshell	1,550	1,700
Wellington	1,750	2,100
Ellsworth County:		
Lorraine	1,700	1,150
Other pools	2,520	2,120
Rice-Barton counties:		
Bloomer	5,100	4,950
Chase	5,450	4,350
Geneseo	4,800	2,800
Raymond	650	500
Silica	14,500	12,150
Keesling	600	1,050
Wherry	4,000	3,650
Miscellaneous Rice	1,040	3,175
Miscellaneous Barton	10,165	8,135
Trapp district	14,250	14,700
Balance Russell County	19,500	21,200
Sedgwick County	3,400	3,350
Ellis County:		
Bemis	7,900	6,950
Miscellaneous	5,260	4,535
Kingman County	1,000	840
Stafford County	6,675	7,295
Greenwood County	8,100	8,250
El Dorado	7,250	7,200
Other fields	30,490	33,300
Total Kansas	176,400	175,350



Midcontinent Map Co., Wichita

W. H. Gaddis' No. 1 Shannon, C E½ SE SW Section 11-27-10w, wildcat in Kingman County, had erected derrick. It is about ½ mile east of a well that opened the Shepherd pool in Section 10 late in 1938, but which later was abandoned. The Shepherd discovery well had initial yield of 50 bbl. of oil daily from Tonganoxie sand at 4,529 ft.

Barton County

Helmerich & Payne, Inc.'s No. 7 Stettinger, C N½ SW NE Section 1-16-14w, Trapp field, Barton County, penetrated Arbuckle lime at 3,332-36 ft., total depth, and daily potential was calculated at 3,152 bbl. of oil.

Skelly Oil Co.'s No. 1 Esfeld, C E½ SE NE Section 30-16-11w, Krier pool, pumped 75 bbl. of oil in 11 hours from basal sand at 3,302-20 ft., total depth, and made daily potential of 435 bbl.

Same company's No. 1 Valenta, C E½ SE NE Section 31-16-11w, found Arbuckle lime at 3,324-40 ft., total depth, swabbed 53 bbl. of oil in 8 hours and potential was calculated at 2,040 bbl.

Shell Oil Co., Inc.'s No. 3 Radenburg, NW SW NW Section 3-17-11w, Kraft field, swabbed 252 bbl. of oil

in 9 hours, cutting 12 per cent, and potential was calculated at 2,244 bbl. Arbuckle lime was found at 3,354-66 ft., total depth.

Stanolind Oil & Gas Co.'s No. 2 Schartz, C S½ S½ SE Section 34-19-11w, Silica field, had Arbuckle lime at 3,295-3,306 ft., total depth, swabbed 14 bbl. of oil an hour and made potential of 1,103 bbl. of oil daily, calculated.

Simpson Oil Co. and others' No. 1-B Duncan, C S½ SW NW Section 8-20-11w, West Ellinwood area, drilled Arbuckle lime at 3,304-22 ft., total depth, pumped 212 bbl. of oil in 8 hours and was completed for initial potential of 2,047 bbl.

Gulf Oil Corp.'s No. 4 Nicholas, C N½ N½ SW Section 12-20-11w, Silica field, swabbed 296 bbl. of fluid in 10 hours from Arbuckle lime at 3,275-87 ft., total depth; plugged back to 3,285 ft. and made daily potential of 858 bbl. of oil.

Lario Oil & Gas Co.'s No. 4 Bryant, SW SE SE Section 23-20-11w, Silica field, had Arbuckle lime at 3,260-80 ft., total depth, pumped 370 bbl. of oil in 8 hours and made daily potential of 1,110 bbl.

Recent Barton County completions: Cities Service Oil Co.'s No. 5 Bitter A, C N½ NE NW Section 5-16-13w, Trapp field, total depth 3,320 ft., 784 bbl. of oil; same company's No. 2 Stoskopf, C S½ NW SW Section 17-16-13w, Trapp field, total depth 3,398 ft., 2,224 bbl.; Black-Marshall Oil Co.'s No. 1 Dolechek, C N½ NW NE Section 24-16-12w, total depth 3,391 ft., dry and abandoned; Sinclair Prairie Oil Co.'s No. 1 Hitchman, C W½ NW SW Section 32-16-11w, dry and abandoned at 3,375 ft.

Rice County

Continental Oil Co.'s No. 1-A Mattson, C S½ SE SE Section 25-20-6w, Rice County sector of the Bornholdt pool, was completed as a water disposal well at 3,964 ft.

Cities Service Oil Co.'s No. 2-C Purcell, NW SE SE Section 28-19-9w, Campbell pool, topped Arbuckle lime at 3,197 ft., was bottomed at 3,216 ft., and daily potential was calculated at 1,960 bbl. of oil.

Gulf Oil Corp.'s No. 4 Ames, C E½ NE NW Section 6-18-10w, Bloomer field, was completed recently at total depth of 3,230 ft., for daily potential of 3,000 bbl. of oil. Other recent Rice County completions: Gulf Oil Corp.'s No. 6 Stout, C N½ NW NE Section 6-18-10w, total depth 3,229 ft., potential 3,000 bbl.; Phillips Petroleum Co.'s No. 1 Wesley, C W½ NW SW Section 35-19-10w, Silica field, total depth 3,312 ft., 331 bbl.; Shell Oil Co., Inc., and others' No. 4 Tobias, NE SE NE Section 6-19-9w, Hafferman area, total depth 3,238 ft., 292 bbl.; Hartman and others' No. 1 Kidd, C S½ SE SE Section 12-20-6w, total depth 3,358 ft., 1,117 bbl.

Vickers Petroleum Co.'s No. 1 Behnke, C W½ NW NW Section 25-18-10w, Orth area, found Arbuckle lime at 3,255-59 ft., total depth, was acidized and made potential of 210 bbl. of oil daily.

W. L. Hartman and others' No. 2 Snyder, C N½ SE SE Section 12-20-6w, set surface casing. W. C. McBride, Inc.'s No. 3 Hodge, C S½ NE NE Section 25-20-6w, cellar.

Ellsworth County

Duwe & Farris' No. 1 Adamek, C S½ SW NW Section 17-16-10w, Stoltenberg pool, Ellsworth County, had Arbuckle lime at 3,365-84 ft., total depth, pumped 188 bbl. of oil in 8 hours and made daily potential of 566 bbl.

Hollow Drilling Co.'s No. 1 Wilkins, C S½ SE SW Section 18-17-9w, Wilkens pool, was completed for 15 bbl. of oil daily after acidizing in Arbuckle lime at 3,252-58 ft., total depth.

Cities Service Oil Co. and others' No. 3 Mehl, C N½ NW NE Section 19-17-9w, recently was completed at 3,245 ft. for 3,000 bbl. of oil daily. C. H. Weaver's No. 2 Johnson, C N½ SE SW Section 21-17-8w, was dry and abandoned at 3,354 ft., total depth.

Russell Moore's No. 1 Lilie, C S½ SE NE Section 30-16-10w, wildcat, was moving in material.

McPherson County

Four producers recently were completed in the McPherson County sector of the Bornholdt pool.

Republic Natural Gas Co.'s No. 1 Knackstedt, C S½ SW NW Section 30-20-5w, was bottomed at 3,330 ft. and completed for daily potential of 3,000 bbl. of oil. Same company's No. 1 Mattson, C S½ SW SW Section 19-20-5w, made daily potential of 2,825 bbl. of oil at 3,331 ft., total depth. Sunray Oil Co. and others' No. 2 Briggs, C E½ SW NW Section 31-20-5w, was rated good for 402 bbl. of oil daily at 3,442 ft., total depth. Same operators' No. 2 Johnson, C E½ W½ NE Section 31-20-5w, was bottomed at 3,426 ft. and completed for 20 bbl. of oil daily.

H. & M. Drilling Co.'s No. 1 Swenson, C S½ SW NE Section 9-18-4w, wildcat, was drilling below 900 ft.

Ellis County

Dickey Oil Co.'s No. 4 Stein, C S½ SW SE Section 7-11-17w, Burnett field, Ellis County, found Arbuckle lime at 3,379-82 ft., total depth, and was completed for maximum allowable potential of 3,000 bbl. of oil daily.

Darby Petroleum Corp.'s No. 2 Hadley, C S½ NE

(Continued on Page 90)

Forest City Basin

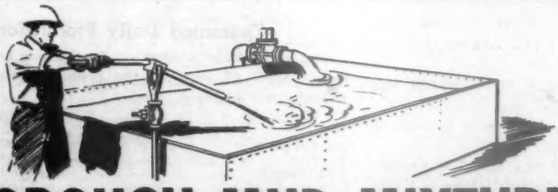
ST. JOSEPH, Mo., Apr. 15.—A spring pickup continues in the Forest City Basin, revival of activity having extended to Northwest Missouri, which has been quiet for several months. Carter Oil Co. spudded its No. 11 Exploration, NE SW Section 2-55-34w, stratigraphic slim-hole test southeast of Agency in Buchanan County. The crew was drilling ahead after setting surface pipe.

George Moore's long idle No. 1 Moss, NW SW SE Section 30-65-24w, Mercer County, is drilling again. Before work was stopped last year there were three 8-in. bits, one 6-in. bit, a spear and two collars in the hole. Drillers succeeded in passing obstructions, found Viola lime at 1,801 ft. and were drilling ahead below 1,801 ft.

J. A. Kilby, Yates Center, Kans., announced location for his No. 1 Meyer, SW SW Section 22-62-39w, Holt County. He reported completion of a block of about 7,000 acres northwest of Mound City. Jerome Flory of Yates Center has the contract.

Bob Miller was tearing down rig at the abandoned No. 1 Corrough, east of St. Joseph in Buchanan County, and was to move rig this week to SW SW Section 30-59-

(Continued on Page 95)



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North and East Texas

By
D. H. STORMONT

Deep Ordovician Production Developed in K. M. A. Field

WICHITA FALLS, Tex., Apr. 15.—Definite discovery of a new deep Ordovician oil-producing spot in the large K.M.A. field of southern Wichita County; the staking of three new wildcats in the recently discovered Omohundro area in western Montague County; indications of a new oil area in Wilbarger County, and general field and wildcat activity throughout the entire district kept the North Texas area at its high pitch for another week.

First Ordovician oil production for North Texas, west of the shallow Voth field in Cooke County, was opened definitely during the week when Fain-McGaha Oil Corp.'s No. 16-E Griffin, W. H. Spillers Survey, in the southwest part of the large K.M.A. field of Wichita County, recorded a flow of 41 bbl. of oil in 30 minutes through tubing. The well was rated a producer from the regular K.M.A. lime, but carried deeper in search of the Ellenburger lime of Ordovician age. The Ellenburger was topped at 4,315 ft. and saturation was drilled from 4,352 to 4,389 ft. Dry sand was logged from that point to the total depth of 4,486 ft. Official gage is expected this week.

Omohundro Area

The area surrounding the Omohundro discovery well in western Montague County centered considerable attention during the week as new wildcats were reported on three sides, and several acreage deals were credited to the immediately surrounding area. Most noteworthy of the week's developments is the report that Sinclair Prairie Oil Co. will purchase the entire acreage held by Omohundro in the area, including the important discovery well, for a consideration of about $1,500,000. The well is No. 1 Seay, Section 32, Block 4, H.&T.C. Survey, just south of Ringgold. Neither Sinclair Prairie nor Omohundro confirmed the report, however, it is known that several companies, including Humble, Sinclair Prairie and Magnolia, have been seeking agreeable purchase terms for the discovery for several weeks.

A new acreage deal for the Omohundro area was reported at the close of the week when Gulf Oil Corp. purchased for $500,000 the 7,500 acres held by Walter Gant of Ardmore, Okla., in the Worsham area of eastern Clay County. The acreage is mainly in the Earl Spring and G. B. Scaling lands and the eastern limits of the north edge of the block call for a north offset to the Omohoundro discovery well. Gant retained ownership of seven deep producers on the tracts and an over-riding royalty on the undrilled acreage until the development cost is returned, at which time the wells to be drilled will be operated jointly.

New Wildcat Locations

Including the north offset required to be drilled by Gulf on its newly acquired acreage, the Omohundro area of western Montague County is scheduled for four new operations. Three-quarters of a mile north of the Omohundro well British American Oil Producing Co. was moving in material for its No. 1 J. A. Martin, 467 ft. from the south and east lines of SE SW Section 27, Block 4, H.&T.C. Survey.

Sinclair Prairie Oil Co. staked two deep wildcats in the area during the past week. First to be located was in the center of W½, Block 10, Jack County School Lands Survey, 3 miles west of Stoneburg and 7 miles south of the discovery well. It is located on a 4,000-acre Sinclair Prairie block.

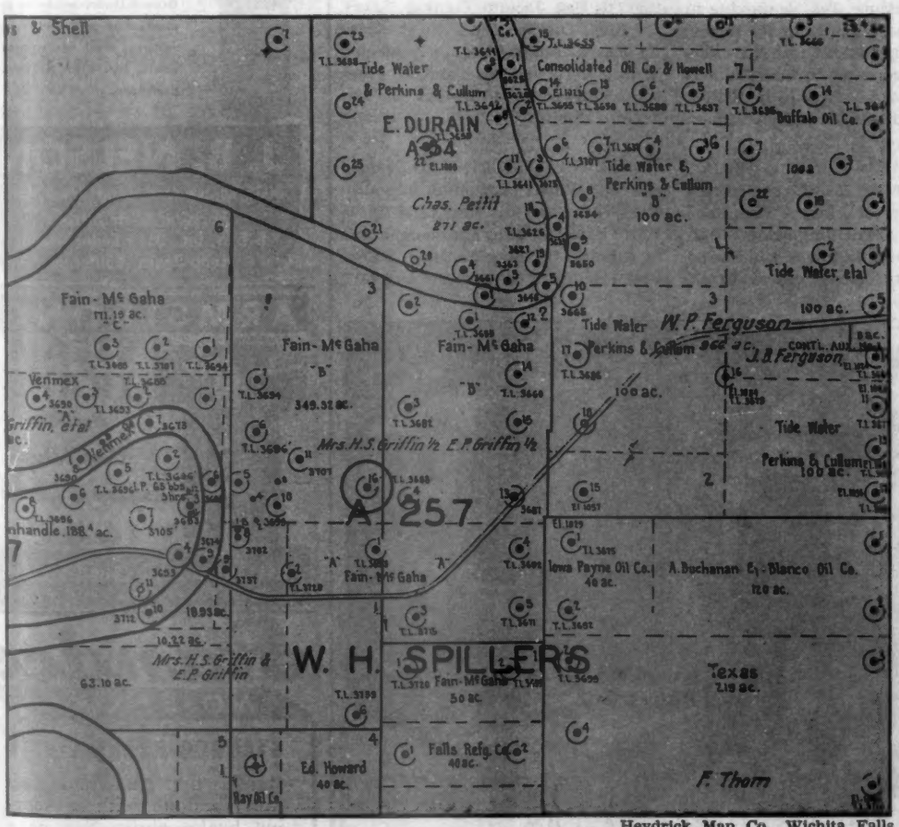
The company's section test is No. 1 T. H. Milam, 2 miles southeast of Ringgold and a similar distance northeast of the Omohundro discovery well. It is located 330 ft. from the south and east lines of Block 54, A. A. Beason Survey, Abstract 20.

Possible New Discovery

Indicating another deep discovery well in Montague County is a wildcat which has long been in the drilling and testing stages. It is Continental Oil Co. and Walter Gant's No. 1 Junia Brown, G. E. Nabours Survey, 5 miles north of Bowie. After having established the record as the deepest test ever drilled in the North Texas area when it went into the Simpson lime at 6,843 ft., the hole was plugged back for testing in the Bend series. Casing was perforated from 6,070 ft., the top of the Bend series, to 6,074 ft. The great thickness of the Simpson formations established the southern part of Montague County as in the Fort Worth basin. The Bend top of 6,070 ft. is several hundred feet below the top reported in either of the discovery wells in the central part of the county.

Bonita Field

Considerable attention was centered on the recently discovery area at Bonita in Montague County as Sinclair Prairie Oil Co.'s second test for the area, No. 1 Doty, cored ahead below 5,297 ft. and had not encountered the 5,240 ft. conglomerate pay of the discovery well. Exact elevations of the two wells are not known, but No. 1 Doty is said to be about 40 ft. higher in elevation. If checked flat, this fact would place the producing horizon top at about 5,280 ft. Only shale and lime breaks were found on cores between 5,272 and 5,284 ft.



Heydrick Map Co., Wichita Falls

Ordovician production within the great K.M.A. field of Wichita County has definitely been established by Fain-McGaha Oil Corp.'s No. 16 Griffin. The well gaged about 80 bbl. hourly on initial tests from the Ellenburger lime at 4,352-89 ft.

EASTERN TEXAS

DALLAS, Tex., Apr. 15.—Leading the development of the week in eastern Texas was the staking of five new wildcat locations, one each in Fannin, Houston and Smith counties and two in Henderson County.

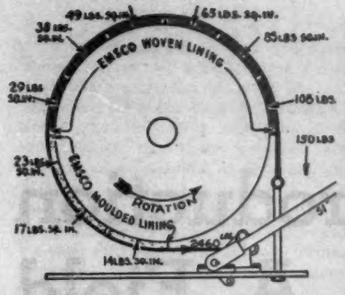
Henderson County's newest wildcat is W. R. Manning and Jack Browning's No. 1 Brown, in the Thomas Meux Survey, a mile southwest of the Rowe & Baker area in the northwestern part of the county. Henderson County's other new wildcat is Ed Parson's No. 1 J. E. Davis, 3 miles south of Eustace and in the K. H. Douglas Survey. It is in the northwest corner of an 81-acre tract and will seek the Woodbine sand.

In Fannin County, 9 miles east of Bonham, Mrs. A. B. Powell has made location for No. 1 Maude Barker, T. Harrison Survey, southeast corner of a 42-acre tract. The wildcat has been spudded and was preparing to drill ahead below 10 ft.

Elmer Hay, trustee, located No. 1 Starr Pope in Houston County 2 miles south of the town of Lovelady. It is in the northwest corner of a 162-acre tract in the J. Forbes Survey. Contract depth will be the Woodbine sand.

Smith County's new wildcat operation is Carmerson Corp.'s No. 1 T. Simpson, R. Walters Survey, 3 miles northeast of Winona. The drillsite is in the

(Continued on Page 91)



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Among the Drilling

W. R. MANNING, contractor and producer of Houston, Tex., has been given contract for drilling Jack Browning's, Athen, Tex., No. 1 W. A. Johnson, 96-acre tract in the northwest corner of T. O. Meux Survey, Henderson County, eastern Texas. The test is about a mile southwest of the Rowe & Baker field in western Henderson County. The contractor is moving rig from a recent failure northeast of the field.

EVERTS DRILLING CO., Dallas, Tex., has staked location and is moving in materials to drill an important outpost test in Ector County, West Texas. The test is to be No. 1 Johnson, between the Johnson and Cummins-Goldsmith fields. Location is 2,200 ft. from the south and east lines of Section 30, Block 43, Township 1s, T.&P. Survey. The location is about 5 miles west of Richmond Drilling Co. and Rhodes & Tompkins' recent north outpost producer for the Johnson field.

HARRY SHUMAN, drilling contractor of Kilgore, Tex., is moving in materials and rigging up for a new Paluxy sand wildcat test 12 miles north of Queen City in Cass County, Northeast Texas. It is to be drilled for E. A. Stiller as his No. 1 Glass, Paxton Survey.

GROOVER & ROSE, contractors and producers of Albany, Tex., have spudded and are drilling below 500 ft. at a Caddo lime wildcat test in Shackelford County, West Central Texas. It is John E. Carson's No. 1 R. A. Elliott, on the southwest flank of the Ibex fold in the eastern part of the county. Location is 660 ft. from the south and east lines of Section 48, B.A.L. Survey. Contract depth is 3,650 ft.

OSAGE DRILLING CO., INC., of Oklahoma City, is drilling below 4,700 ft. on its No. 2-A N. W. Willard in Section 766, Block D, John H. Gibson Survey, Yoakum County, Texas. Same company is completing No. 4 Mary Jordan for Basin States Oil Co. of Dallas, Tex., in the same area of Yoakum County, Texas.

ALLEN & MORRIS are completing American Liberty Oil Co.'s No. 4 Ward at the West Ranch field, Jackson County, Texas, and have moved a rig to the Agua Dulce field, Nueces County, for Union Producing Co.'s No. 8 Talbert. Another rotary is located in Calhoun County for Coronado Corp.'s No. 1 Welder.

JACK FRAZIER has moved a rotary to San Jacinto County, Texas, for Shell Oil Co., Inc.'s No. 1 Santa Fe Tie & Lumber Co., a projected Wilcox test located about 5 miles southwest of Cold Springs in San Jacinto County.

SUPERIOR DRILLING CO. opened the first Wilcox production in Southwest Texas and the first field in De Witt County with the completion of Atlantic Refining Co.'s No. 1 Conwell. Members of the crew and offi-

Crew of Habar Drilling Co., Wichita, Kans., at Sinclair Prairie Oil Co.'s No. 1 Doty, south offset to the company's discovery well ¾ mile west of Bonita in Montague County, North Texas. The men are: Howard Smith, Fred Willard, J. W. Ham, Vernon Freeman, and L. L. Cowen, driller

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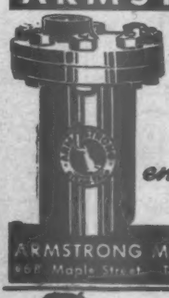

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Contractors

cials for Atlantic Refining Co. were given a barbecue at the well site last week by business men of Cuero. Contract was received for J. F. Hutchins and others' No. 1 Wearden, a wildcat located 3 miles east of the Cordelle field in Jackson County.

GLENN H. McCARTHY is attempting to open a new producing depth of the Texas coast as he prepares to test his No. 1 Andrau and No. 2 Houston Farms Development Co., two outpost wells in the Chocolate Bayou field, Brazoria County. No. 2 Houston Farms, which holds the record of being the deepest well drilled on the Texas coast at a total depth of 11,760 ft., is being tested after casing was cemented at 11,170 ft. The Andrau well was drilled to a total depth of 11,393 ft. and 4-in-liner is being cemented on bottom.

LOFFLAND BROTHERS are drilling below 5,100 ft. on Shell Oil Co., Inc.'s No. 1 Plow Realty Co., located in the Clodine area, Colorado County, Texas. Another operation is being started in the Thompson field for the company's joint test with H. M. Naylor which is located on the west bank of the Brazos River. The well is No. 1 State and the hole will be drilled by directional methods to a point in the center of the river.

CROSBY DRILLING CO. temporarily abandoned Strake Petroleum Co.'s No. 1 Poole, a wildcat in Wharton County, Texas, and the rig is being moved to Fort Bend County for Tide Water Associated Oil Co.'s No. 1 George Armstrong, a wildcat located in the James Scott Survey. Other operations are reported at the Thompson, Bancroft and Bayou Blue fields, all of which are being drilled for Crosby Drilling Co.

ROWAN DRILLING CO. abandoned the company's wildcat, No. 1 McIlvaine, 2 miles west of Alvin, Brazoria County, Texas, at a total depth of 7,515 ft., and the rig is being moved about 7 miles southwest of Alvin for the company's No. 1 T. B. Hubbard estate which is scheduled to be drilled to a depth of 10,000 ft.

COASTAL DRILLING CO. is moving a rotary about 5 miles southwest of the West Ranch field, Jackson County, Texas, for W. Stewart Boyle's No. 1 J. M. Bennett ranch in the John M. Bennett second subdivision.

FALCON-SEABOARD DRILLING Co. is running a string of protection casing in Sal Vieja Oil Co. and Pure Oil Co.'s No. 1 Garcia, a projected 10,000-ft. wildcat located in Cameron County, Texas. At the old Napoleonville dome, Assumption Parish, Louisiana, the company's No. 1 Simoneaux is coring below 5,500 ft.

HARRY I. MORGAN, of Shreveport, La., is moving a heavy drilling rig to a wildcat location, staked by Royal Oil & Gas Co. and Tatum, Dunbar, Shaddock & Jefferies, to be known as the No. 1 Junior College, Hinds County, Mississippi, near Jackson. Another Morgan rig is drilling Morgan's No. 1 Dantzler Lumber Co., wildcat in Stone County, Mississippi.

HARRY SHUMAN, drilling contractor of Kilgore, Tex., is moving equipment into northeast Cass County, Texas, for a wildcat test to be known as E. A. Stiller and others' No. 1 Glass.

Red Iron Drilling Co. has contract for a wildcat located in Miller County, Arkansas, 1½ miles south of the Fouke discovery well. The test will be drilled for F. B. King in Section 7-17-26. Two operations in Mississippi are Reid Clarke's No. 1 Allen, Humphreys County, rigging up, and G. C. Grasty's No. 1 Kentucky Lumber Co., which is underreaming at 2,800 ft. in Itawamba County.

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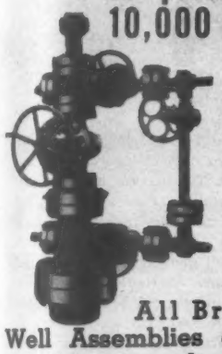

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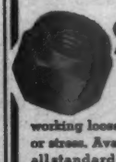

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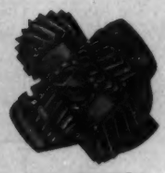

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Oklahoma Operations

By
DAL DALRYMPLE

Marshall Discovery Has Big Oil Yield, Start New Tests

Major interest in Oklahoma field activity centered in Marshall County, where Pure Oil Co.'s No. 1 Quintin Little, C W½ NE SE Section 28-5s-7e, put on a show the past week when it was tested in Tulip Creek sand zones. Locations for four additional tests in the vicinity of the discovery well were announced by the Pure company, which has a block of about 22,000 acres in Marshall, Bryan and Johnston counties.

The No. 1 Quinton Little flowed 2,410 bbl. of oil in 14 hours and 45 minutes from Tulip Creek sand topped at 4,952 ft., while washing the walls. After the hole was washed down from 4,960 to 5,054 ft., the wildcat flowed 650 bbl. of oil in 4 hours through a partially opened master gate. Gas gaged around 25,000,000 cu. ft. a day the last hour. A small fishing job delayed operations for a time, but after it was completed the well flowed 182 bbl. of oil an hour for 3 hours. Operators were continuing to test through various-sized chokes. Gravity of the oil was 36.5° at 72°.

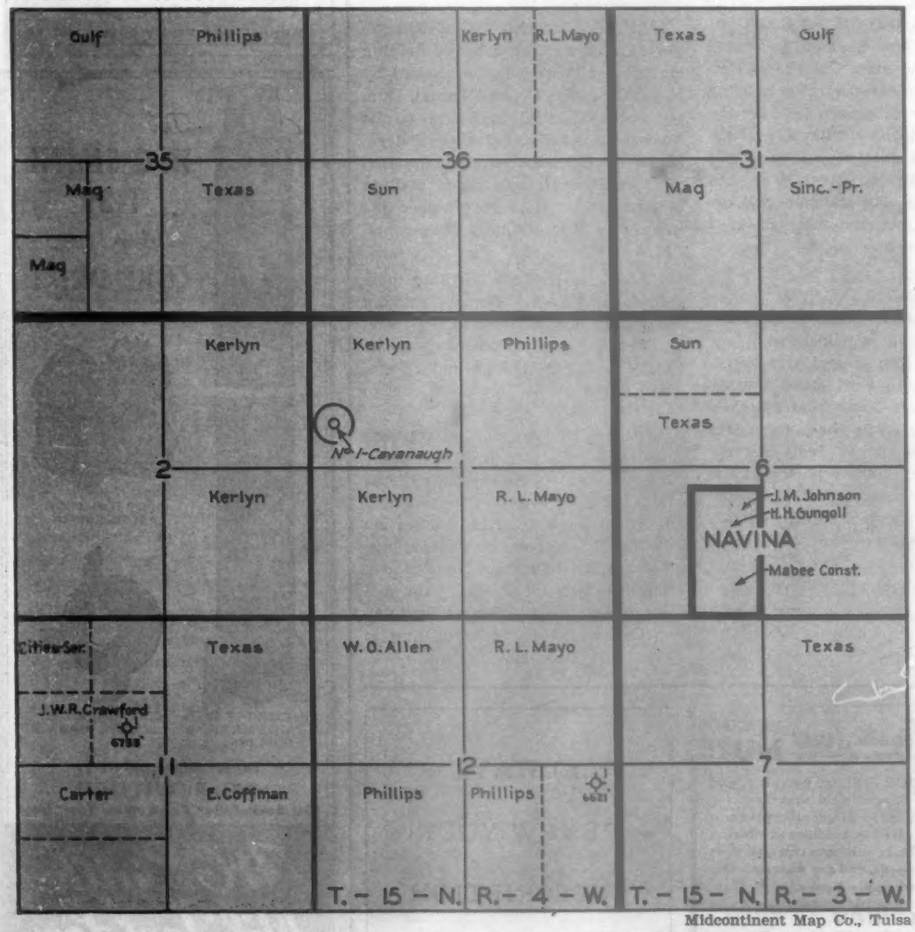
The operators plan several tests to determine the best gas-oil ratio and best method of flow in order to establish a conservative program.

A second sand was topped at 5,088 ft., the well showing production in both Tulip Creek sand zones on drill-stem tests. The hole was deepened to McLish formation at 5,103 ft., sands from 5,370 ft. to 5,589 ft., and it was bottomed at 5,640 ft. Salt water was indicated in McLish zone, and operators decided to plug back and test the Tulip Creek showings, with results as stated. Seven-inch casing was set at 4,857 ft., with plug at 5,100 ft.

Work is to start right away at four additional tests on the Pure company's block. Two of these are in Marshall County and two are across the Washita River in Bryan County. The locations are:

Pure Oil Co.'s No. 1 Quintin Little B, NE SW SE Section 28-5s-7e, southwest of the discovery, in Marshall County; the company's No. 1 Stewart A, SW SE NE Section 28-5s-7e, north of the discovery, in Bryan County; the No. 1 Thomas, SW NE NW Section 28-5-7, northwest of the discovery, in Marshall County; and No. 1 Park College, SW SW SE Section 27-5s-7e, southeast of the discovery, in Bryan County. Locations are being cleared.

The new area, which has been named the Cumberland pool, is about 12 miles east of Madill in northeastern Marshall County and near the Bryan and Johnston county lines.



Midcontinent Map Co., Tulsa

Kerlyn Oil Co. and associates were due to spud at No. 1 Cavanaugh, C W½ SW NW Section 1-15-4w, west of Navina, Logan County. It is to seek Wilcox sand production. Location is on a 640-acre block, which was assembled and geology worked by Lon B. Turk and Ross Mayo, Oklahoma City. Dry holes to the south of the block went to Wilcox sand, but had no salt water

It is near the banks of the Washita River, a contributary to the Red River. The area will be flooded when the proposed Denison dam on the Red River is completed. Army engineers in charge of building the dam estimate completion of the dam will require about 4 years, with an additional year to fill the reservoir. The field may be fully developed by that time, but if not there will be no obstacles that cannot be overcome, engineers say. If drilling activity has not been completed within 5 years, the power outlets at the dam can be kept open and development of power delayed until the drilling is completed, according to engineers. Since oil development started in the area, the Government has been buying only the surface rights in the proposed reservoir area.

Another Marshall County wildcat, Johnson & Kemnitz and McGraw Oil Co.'s No. 1 Neff-Godfrey, SW SE NE Section 14-6s-6e, west of Aylesworth, was preparing to resume drilling to Arbuckle lime after drilling to 4,582 ft., perforating up the hole and getting salt water.

Possibility of opening an oil pool in Beckham County, extreme western Oklahoma, was indicated at Fred Coogan and others' No. 1 Kinchen, SE SE SE Section 4-9-25w, wildcat west of Sayre and near the Erick gas field. Operators were reported bailing high-gravity oil from the hole, with hole filling as rapidly as the fluid could be lowered. It had dolomite at 3,260-3,463 ft., total depth 3,718 ft. in white lime, with fresh water in the hole. Bailing the hole preparatory to proposed abandonment, gas broke through when the fluid was lowered to 1,200 ft. from top; later there was a spray of oil with the gas, and then oil began showing while bailing. Until fluid is lowered and drilling water reclaimed, operators won't know what they have, but they are confident it will be an oil well. The wildcat is on the northwest edge of the Erick gas field, in which there has been no oil production, although two previous edge tests have had showings of oil while drilling.

Kerlyn Oil Co. and others were due to spud with machine at No. 1 Cavanaugh, C W½ SW NW Section 1-15-4w, wildcat west of Navina, Logan County. It is to be a Wilcox sand test.

Pottawatomie County

T. C. Iglehart's No. 1 Swan, SE NW SW Section 4-6-5, St. Louis district, Pottawatomie County, topped dolomite at 4,118 ft., total depth 4,149 ft., and pumped 178 bbl. of oil and 2,500 bbl. of water daily after acidizing.

Burns Oil Co.'s No. 1 Henry, SW SW NW Section 29-7-4, had Hunton lime at 3,805 ft., was bottomed at 4,312 ft. in dense, acidized and pumped 245 bbl. of 39-gravity oil and 200 bbl. of water daily.

Buttram Oil Co.'s No. 1 Rhodd, NE NE NW Section 17-7-5, had Earlsboro sand at 3,161 ft., total depth 3,190 ft., was shot but was dry and abandoned.

Gaskill's No. 1 Lee, NE SW NW Section 5-10-4, Shawnee area, flowed 57 bbl. of oil in 6 hours and made daily potential of 315 bbl. Top of Earlsboro sand was 4,415 ft., total depth 4,480 ft.

Other recent completions included G. & M. Drilling Co.'s No. 1 Pierce, NW NE NE Section 6-10-4, 118 bbl. of oil, total depth 4,484 ft., and Ray Dunnett's No. 2 McDaniel, SW SW SE Section 31-11-4, produced 614 bbl. of oil daily at 4,465 ft., total depth.

Tabor, Coleman & Barrett's No. 1 McKinney, C E½ SE SW Section 11-10-4, wildcat, was a location. George Pace's No. 1 Ready, SE SW SE Section 30-10-5, set 12-in. pipe at 100 ft. and was waiting on cement. Burns' No. 1 Davis, SE SW NE Section 30-7-4, was rigging up rotary.

Pontotoc County

Sinclair Prairie Oil Co.'s No. 16 Ralls, CWL NE SW Section 28-5-8, Allen area, Pontotoc County, was shot

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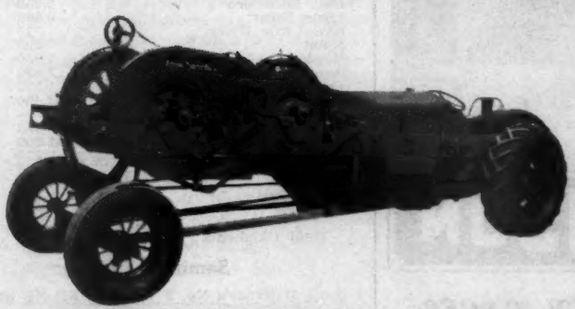

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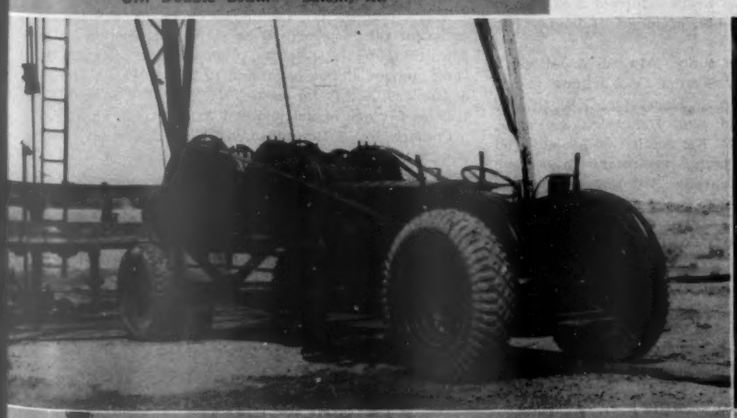

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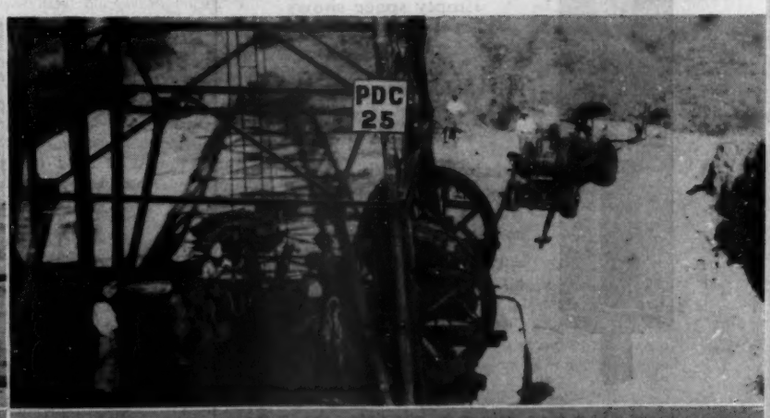

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K. D. & H. Co.'s No. 6 Gilmore, SW SE NE Section 29-5-8, had sand at 869 ft., total depth 887 ft., and was completed as a disposal well.

Senora Oil & Gas Co.'s No. 1 Summers, NE SW SW Section 25-5-4, had dug cellar and pits. Patterson's No. 1 Norvell, NW NW NW Section 35-5-4, spudded.

Estimated Daily Production

Estimated daily production for Oklahoma for the week ended April 13, and for the preceding week was as follows:

	Barrels	
	Apr. 13	Apr. 6
Allen	5,850	5,825
Billings	6,200	6,100
Burbank	7,250	7,200
South Burbank	8,650	8,650
Balance Osage	16,750	16,725
Blackwell district	3,675	3,650
Bristow-Slick	6,100	6,050
Chandler	1,250	1,250
Crescent	2,125	2,150
Cromwell	3,000	2,900
Cushing-Shamrock	9,250	9,225
Duncan	3,725	3,700
Edmond	4,300	4,175
Fish	3,400	3,400
Fitts	17,900	18,800
Jesse	2,250	2,200
Graham-Fox	2,150	2,150
Gray	750	750
Healdton	8,825	8,750
Hewitt	3,925	3,950
Keokuk	3,225	3,200
Konawa	1,200	1,200
Lucien	3,150	3,200
Moore	1,875	1,875
Northeastern counties	17,250	17,000
Oklahoma City	90,750	102,500
Olympic	2,350	2,350
Ramsey	3,800	3,800
Sasakwa	1,700	1,650
Sholem-Alechem	2,900	2,900
Seminole district:		
Bowlegs	7,200	7,250
Carr City	2,400	2,400
Dora	2,100	2,200
Earlsboro	4,350	4,400
South Earlsboro	550	600
East Earlsboro	2,250	2,250
Little River	6,800	6,800
East Little River	725	725
Maud	625	625
Mission	1,350	1,325
Seminole	7,450	7,400
East Seminole	1,175	1,150
Searight	2,400	2,400
Total Seminole	39,375	39,425
St. Louis-Pearson	31,000	30,500
Tatums	2,275	1,975
Tonkawa-Garber-Thomas	4,100	4,050
Wewoka	1,800	1,550
Yale-Jennings	3,550	3,550
Other pools	79,675	77,250
Total Oklahoma	412,300	420,775

Seminole County

Dave Malernee's No. 3 Wood A, SE NE SE Section 33-7-6, Dora area, Seminole County, had sand at 2,808 ft., total depth 2,895 ft., was shot, flowed 320 bbl. of oil initially, and pumped 200 bbl. of oil and 60 bbl. of water.

Rudco's No. 2-B Tewee, NE SW NE Section 14-7-6, Little River area, topped Cromwell sand at 3,194 ft., total depth 3,232 ft., perforated casing and pumped 125 bbl. of oil and 20 bbl. of water daily. Gravity of the oil was 36.6°.

Burke-Greis Oil Co.'s No. 4 Henshaw, SW NE SW Section 30-8-8, had Gilcrease sand at 3,015 ft. and was dry and abandoned at 3,048 ft.

W. C. McBride, Inc.'s No. 1 Collins, NE NW NW Section 24-5-5, old well, was deepened from 2,487 ft. to 2,692 ft. and pumped 22 bbl. of oil in 24 hours after acidizing.

New work in Seminole County: Edwards & Johnson's No. 1 Long, SE NW NW Section 1-6-5, wildcat, cellar and pits; Thompson's No. 2 Harryman, NW SE SE Section 33-7-6, cellar and pits; Helmerich & Payne, Inc.'s No. 1 Davis, NE SW NE Section 30-7-8, old well bottomed at 3,052 ft., rigging up rotary to deepen; Paul McIntyre's No. 7 Johnson, SW NW NE Section 10-10-8, drilling below 1,090 ft.

Latimer County

Limestone Co.'s No. 2 Kilpatrick, SE NW SE Section 16-5-18, Wilburton area, Latimer County, had casing stuck in junked hole bottomed at 2,295 ft., and it was abandoned.

Same company's No. 2-A Kilpatrick, SE NW SE Section 16-5-18, was a location.

Caddo County

Ray Stephens, Inc.'s No. 3 Thompson, NE SE NW Section 27-6-10w, Cement field, Caddo County, set 9-in. casing at 4,719 ft., total depth 5,536 ft., rigged casing, shot, and pumped 5 bbl. of oil and 6 bbl. of water.

Sunray Oil Co.'s No. 2 Kla-da-ing, SE NW SW Section 3-5-9w, was bottomed at 3,792 ft., plugged back and was temporarily abandoned.

J. B. Nicholas' No. 4 Royse, NW SE SW NE Section 12-5-9w, recently was completed for 15 bbl. of oil daily at 3,580 ft., total depth.

Ohio Oil Co.'s No. 14 Paukune, NE SW SE Section 3-5-9w, was completed for 1,734 bbl. of oil daily at total depth of 3,425 ft.

Okfuskee County

Snyder's No. 13 Wind, NW SW NE Section 35-11-9, Okemah area, Okfuskee County, had sand at 1,473 ft., total depth 1,495 ft., was shot and pumped 18 bbl. of oil daily.

First reports of new operations in Okfuskee County: Summit Drilling Co.'s No. 3 Simmer, SE SW NW Section 18-10-11, building rig; same company's No. 6 Steil, SW NE SW Section 18-10-11, building rig; Higgins' No. 1 Berryman, NW NW SW Section 25-11-8, location; Burke-Greis Oil Co.'s No. 4 Robinson, NE NE SW Section 36-11-9, rig.

Stephens County

Phillips Petroleum Co.'s No. 1 Donahue, SE NE SW Section 4-1n-5w, West Doyle area, Stephens County, topped sand at 5,506 ft., had oolitic lime at 5,670-99 ft., total depth 5,901 ft., was shot, flowed 130 bbl. of oil by heads initially, and was pumping 11 bbl. daily, pumping off.

Helmerich & Payne, Inc.'s No. 2 Hefner, NE SW Section 12-1n-5w, Doyle pool, was bottomed at 5,800 ft., 7-in. casing set at 5,785 ft., and perforated at 5,490-5,540 ft., and it flowed 1,070 bbl. of oil in 9 hours.

Carl Carter's No. 1 City Bank, NE SE SE Section 16-1s-5w, recently was dry and abandoned at 551 ft.

Carter County

Magnolia Petroleum Co.'s No. 2 Cox, NE NW Section 22-2s-2w, Carter County, was dry and abandoned in shale at 1,850 ft., total depth. Carter's No. 1 Williams, SW NE SW Section 27-2s-3w, old deep discovery well in the Fox field, was plugged back from 8,105 ft. to 6,750 ft., casing was perforated at 4,945-5,438 ft., it was acidized, and pumped and flowed 470 bbl. of 36-gravity oil in 24 hours.

Jackson County

O. P. Burnham's No. 7 Sumner, SW SW NE Section 6-1s-19w, Tipton area, Jackson County, had granite wash at 2,327 ft., total depth 2,623 ft., and pumped 45 bbl. of oil daily.

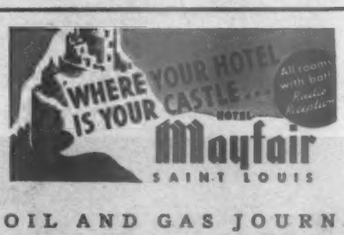
Completions in the Altus area: Gulf Oil Corp.'s No. 6 Edwards, SW SE Section 3-1n-20w, set 7-in. casing 1,442 ft., total depth 1,695 ft., pumped 16 bbl. of oil and 12 bbl. of water. Same company's No. 3 Herbert, SE SE Section 9-1n-20w, granite wash 1,418-30 ft., total depth, flowed 440 bbl. of 41.2-gravity oil in 18 hours through casing, flowed 90 bbl. in 24 hours through tubing. Kerbow & Brittain's No. 1 Alexander, NE SE Section 10-1n-20w, granite wash 1,420-27 ft., total depth 1,445 ft., pumped 5 bbl. of oil. Badger's No. 1-A Dosher, NW NE Section 14-1n-20w, total depth 1,651 ft., temporarily abandoned. Gulf Oil Corp.'s No. 2 Byrd, SE SW NW Section 14-1n-20w, old well deepened from 1,544 ft. to 1,701 ft., plugged back and perforated, recompleted for 165,000 cu. ft. of gas. Hinton and others' No. 1 Maude, NW NE Section 15-1n-20w, set 7-in. pipe 1,364 ft., total depth 1,604 ft., pumped 40 bbl. of oil in 4 hours, pumped off, pumps 15 bbl. daily and pumps off. Gulf Oil Corp.'s No. 2 Enos, NE NE Section 16-1n-20w, total depth 1,780 ft., plugged back to 1,620 ft., shot, pumped 49 bbl. of oil and 12 bbl. of water. Hanna & Eikner's No. 1 Hardcastle, NW NW SW Section 15-1n-20w, dry and abandoned at 1,700 ft., total depth.

Cotner's No. 2 Robertson, NE SE SE Section 15-1n-20w, was a location.

Grady County

Magnolia Petroleum Co.'s No. 11 Harrison, SW SE NE Section 28-3n-5w, Knox pool, Grady County, set 7-in. pipe at 2,439 ft., total depth 2,509 ft., plugged back to 2,485 ft., flowed 18 bbl. of oil in 14 hours.

(Continued on Page 93)



Crockett County Discovery Deemed of First Importance

By D. H. STORMONT

MIDLAND, Tex., Apr. 15.—New flush production in Crockett County was opened as the week closed by a well estimated from 1,500 bbl. to 7,200 bbl. per day. It is Soma Oil & Gas Syndicate's No. 1 W. T. Noelke, 2,500 ft. from the north and 2,310 ft. from the west lines of Section 30, Block GG, H.E.&W.T. Survey, western Crockett County. The large discovery well is only about 5 miles east and slightly south of the famous Yates field. Production is believed from a lime horizon corresponding to the pay section in the Yates field. No. 1 Noelke's pay was topped at 1,035 ft. and immediately blew out without penetrating the section more than a foot or two.

Reports credited the well with flowing a steady stream of oil 200 ft. into the air. The oil was said to be in a solid 8-in. stream coming out of the 8-in. hole with only 545 ft. of casing set. Typical of first reports of a new discovery, some sources said the well had flooded the area surrounding and was running down a canyon for 2½ miles and into the Pecos River. While waiting for a professional high-pressure well-fighting crew to arrive, all hands were reported engaged in attempting to erect a dam at the mouth of the canyon to save the oil being blown out.

The Soma Oil & Gas Syndicate is owned by James Gouras, a restaurant owner of Chicago. Henry Schooler of Big Lake is the drilling contractor at the well.

While the first reports of the well were very high, the belief was expressed among oil men that the discovery is the greatest since the Yates field as far as individual well potential is concerned. Some more-conservative reports state that the well is probably making between 100 and 150 bbl. of oil hourly with gas volume estimated 25,000,000 cu. ft.

Other news from the district included new wildcat tests for Ector County and indicated extensions to the Slaughter field in Hockley County. Ector County's two new wildcat tests were one each in the central part and the extreme southern part of the county. Plans for a deep wildcat in the Jordan field were announced by E. E. Fogelson, Dallas, Tex. The operator plans to drill to 4,800 ft. to test the Holt horizon and the Tubb horizon, both of which have been found in Ector and Crane counties. Location was not definitely made, but the operator reported it would probably be on the University "B" lease which consists of the SW Section 7, Block 35, University Lands Survey. Contract for the test has been let.

In the central part of Ector County and between the Johnson area and the Goldsmith field, Everts Drilling Co., Dallas, Tex., has staked location for No. 1 Johnson, 2,200 ft. from the south and east lines of Section 30, Block 34, Township 1s, T.&P. Survey. The location falls about 2½ miles northwest of production in the north end of the Johnson area.

New interest was shown in the deep Holt horizon during the week as a new producer was in prospect and a new location was staked. The indicated producer is Barnsdall Oil Co.'s No. 1 Blakeney, Section 2, Block A, P.S.L. Survey, ¾ mile northwest of the discovery well and between it and Stanolind Oil & Gas Co.'s recent 2½-mile extension to the northwest. The No. 1 Blakeney showed 15 ft. of lime with some saturation and porosity in a core from 5,175 to 5,190 ft. Core from that depth to 5,202 ft. returned 14 ft. of lime also showing some saturation and porosity. At last reports the test was shut down for orders at a total depth of 5,220 ft. after recovering shows of sulfur water at that depth.

Pecos Ordovician

In northern Pecos County and 8 miles northwest of the Ellenburger producing Apco field, Humble Oil & Refining Co.'s No. 1 Mrs. Bertha D. Young, wildcat in Section 33, Block 10, H.&G.N. Survey, was last reported drilling below 6,865 ft. and still in Simpson lime. This test is watched with much interest since it has thus far logged a section different from that in wells in the Apco field. After topping the Upper Paleozoic rocks somewhat higher than expected, the wildcat encountered detrital material at the contact of the Ordovician at 5,185 ft. Detrital material was drilled to a depth of 5,624 ft., there being 439 ft. of it. At this depth the Simpson was topped, an Upper Ordovician series not usually found in Apco field wells. Now checking very low, the Ellenburger lime was expected within a few hundred feet. Its present depth of 6,911 ft. is still in the Simpson series making a total of more than 1,200 ft. of Simpson section.

North Basin Area

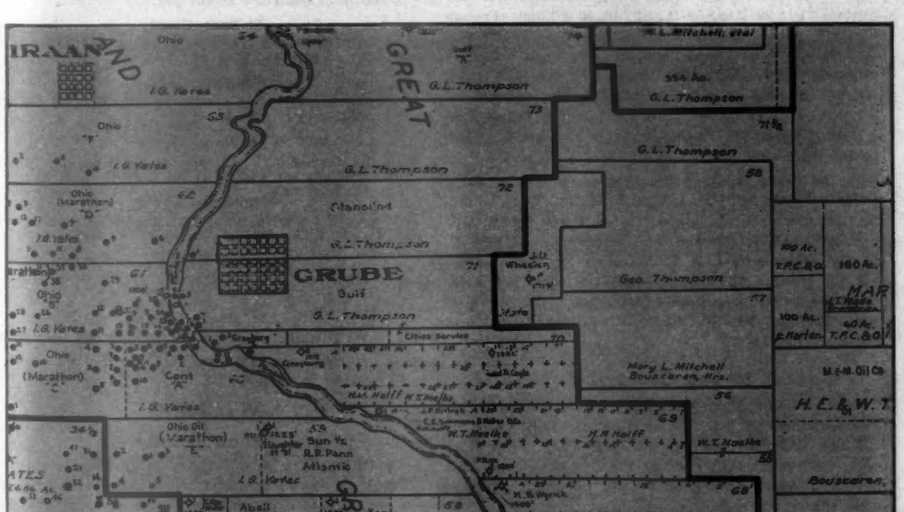
Indicating a ½-mile northwest extension for the Slaughter field in Hockley County, George Etz's No. 1-A Caddell, Labor 31, League 39, Maverick County School Lands Survey, was scheduled for acid treatment as the week closed. The test is bottomed at 4,906 ft. and encountered oil shows from 4,965 to 4,975 ft.

Delta Drilling Co.'s No. 1-A Slaughter, Labor 21, League 41, Maverick County School Lands Survey, a mile north extension to the field, is bottomed at 4,976 ft. and awaiting potential gage. It has been treated with 8,000 gal. of acid.

Terry County

Across the county line south from the Slaughter field and in Terry County, George Livermore's No. 1 Jackson, Section 6, Block 11-D, C.&M. Survey, a south outpost to the Slaughter field, was last reported drilling below 4,870 ft. in lime which had been topped at 4,220 ft.

In the southern part of Terry County and 8 miles north of the Cedar Lake field of Gaines County, Tide Water Associated Oil Co.'s No. 1 Oran Buckner, Section 3, Block 37-C, P.S.L. Survey, was bottomed at 4,370 ft. where split 8-in. casing is being recemented.



Southwest Map Co., Fort Worth

Indicating one of the best discoveries in West Texas in some time is Soma Oil & Gas Syndicate's No. 1 Noelke, Section 30, H.E.&W.T. Survey, 5 miles east of the Yates field. Its producing horizon at 1,035 ft. is believed to correspond with the Yates field. Later estimates place its production at about 100 bbl. hourly with about 25,000,000 cu. ft. of gas

WEST TEXAS FIELD COMPLETIONS

(24-hour gages)

Crane County

In the McElroy field, Gulf Oil Corp.'s No. 21 Henderson, 3,532-33 ft., 1,368 bbl. Gulf Oil Corp.'s No. 17 McElroy, 2,792-2,989 ft., 208 bbl., (old well drilled deeper). Garrett M. Smith's No. 2 Cordova-Union, 2,745 ft. total depth, 8 bbl. (old well drilled deeper for no increase). Texas Co.'s No. 45 King, 2,345-95 ft., 67 bbl.

Crockett County

Spears Interests' No. 1 A. C. Hoover, a wildcat, abandoned location. In the Todd area, Continental Oil Co.'s No. 2-B Todd unit, topped crinoidal lime at 5,615 ft. and bottomed at 5,691½ ft., made 1,613 bbl. to open new field.

Ector County

In the Foster field, Atlantic Refining Co.'s No. 2-F Johnson, 4,170-4,220 ft., 405 bbl. Barnsdall Oil Co.'s No. 4 Witcher, 3,970-4,180 ft., 1,281 bbl. Schermerhorn Oil Co.'s No. 8 Johnson, 4,060-4,191 ft., 581 bbl. Sinclair Prairie Oil Co.'s No. 2-C Johnson, 4,061-4,180 ft., 681 bbl. Stanolind Oil & Gas Co.'s No. 36 Witcher, 3,890-4,140 ft., 864 bbl. Sunray Oil Co.'s No. 3-C Johnson, 4,166-4,227 ft., 283 bbl. Sunray Oil Co.'s No. 1-D Johnson, 4,040-4,150 ft., 875 bbl.

In the Goldsmith field, Phillips-Pure's No. 81 C. Cowden, 4,114-58 ft., 674 bbl. Trinity Drilling Co.'s No. 1-C Scharbauer, 4,188-98 ft., 29 bbl. Landreth Production Corp.'s No. 2-N and 1-T Scharbauer, abandoned

(Continued on Page 90)

Rocky Mountain Area

By T. R. INGRAM

Lakota-Dakota Sands Had Too Much Water in Wyoming Test

DENVER, Colo., Apr. 15.—General Petroleum Corp.'s No. 1-21-G, on Cole Creek, north of the discovery, proved a disappointment in the Dakota-Lakota sands and will plug back and test upper horizons. Lance Creek had four completions one of which, Ohio Oil Co.'s No. 8 State-Lamb, an outside well on the east side, made 70 bbl. an hour and extended the Sundance sand pool one location to the east. Minnelusa Oil Corp.'s No. 1-A Joss made 40 bbl. an hour from the Leo sand after plugging back from the Joss in which it had water. Continental Oil Co.'s No. 10-B Schuricht made 920 bbl. the first day, and its No. 5 Apex-1 tested 60 bbl. per day in the Sundance. Sinclair-Wyoming Oil Co.'s No. 91-A, in Lost Soldier, made 225 bbl. initially. Cut Bank, Montana, had three completions, the only one of importance being the Santa Rita Oil & Gas Co.'s No. 10 Tribal, which swabbed 201 bbl. in 18 hours from Sunburst and Cut Bank sands.

NEW MEXICO

Eight locations were made in the Southeast New Mexico district during the past week as compared with 13 for the previous week. A total of 15 completions were recorded for the district, five new oil wells and a dry hole in Eddy County, six oil wells in Lea County and two dry holes in Chaves County.

In the Loco Hills field in Eddy County a dry hole apparently defined the southern limits of the field proper. Allen-Pope-Fair's No. 3-B State, located 330 ft. from the north and east lines of Section 16-18-29, was abandoned at a total depth of 2,766 ft. after encountering salt water from 2,749 ft. to total depth. It had logged a showing of dead oil in sand at 2,532 ft. and slight shows of gas at 2,540 ft.

Indicating an increase in activity for the Vacuum field in Lea County, Texas Co. last week let contracts for the development of its acreage in the field. The contracting company is American Drilling Co. of Fort Worth and the campaign is expected to embrace some 30 or 35 wells to be drilled successively. The first two of the series are being rigged up for immediate spudding.

Eddy County

G. R. Burke's No. 1 State, SE cor. SE SW Sec. 36-16-24, (O.W.D.D.) S.D. 2,550 ft.
Everts' No. 1 Greer, SE cor. Sec. 31-16-31. P.B. 3,690 ft.; est. 15 B.O.P.D.; S.I.
Everts & Moran's No. 1 Ranuz, NE NW Sec. 18-23-26. T.D. 375 ft.; S.D.
J. B. Cowden's No. 1 State, SW SE Section 3-17-29, between Root field and High Lonesome field. M.I.M.
G. A. Grober's No. 1 Wright, 1,080 ft. from N and W lines, Sec. 25-18-28. Tstg. S.O.&G. 1,382 ft.; est. 10 B.O.P.D.; S.D.R. 1,883 ft.
G. M. Cone's No. 1 Hare, NW NW NE Section 14-16-28, 3 miles west of High Lonesome field. Loc.
Artesia Drlg. Co.'s No. 1 Hoffman, SE SE SE Sec. 14-17-24. S.D.R. 975 ft.; est. 1,250,000 cu. ft. gas at 938 ft.
L. E. Elliott's No. 1 Elliott, SE SE SE Sec. 24-17-29. S.S.O. 3,255-75 ft.; S.D.O. 3,482 ft.; made 1 B.O. and 4 B.W. in 24 hrs.; drlg. 3,620 ft.
J. W. Elliott's No. 1 Cannon (O.W.D.D.), C SW SE Sec. 4-19-30. S.D.O. 3,421 ft.; sulf. wtr.
Trojan Oil Co.'s No. 1 Grant, SW SW NE Sec. 33-20s-25e. S.O. 1,530 ft.; S.D.R. 1,580 ft.
Anderson's No. 1 Neeson, 330 ft. from W and 2,310 ft. from N lines, Sec. 4-16-30. S.D.R. 2,650 ft.
Clark & Cooper's No. 1 Gates, 1,980 ft. S and E lines, Sec. 20-16-27. Drlg. 2,335 ft.
A. E. Frazier's No. 1 H. E. Yates, 330 ft. from N and 1,650 ft. from E lines, Sec. 6-20-27. S.D. 817 ft.
Frederick's No. 1 Reed, 1,980 ft. from S and W lines, Sec. 28-24-38 (O.W.D.D.). Est. 1,500,000 cu. ft. gas at 2,300 ft.; C.O. to run csg. 2,893 ft.
Jack Harris' No. 1 Josey, 370 ft. from S and 2,310 ft. from W lines, Sec. 20-20-23. R.U. and S.D.
Wilder's No. 1 Young, 1,650 ft. from N and W lines, Sec. 23-16-29. S.G. 1,805 ft.; S.D.O. 3,095 ft.
Sam Montgomery's No. 1 Kaltenback, 330 ft. from N and W lines, Sec. 24-16-27. Drlg. 2,205 ft.
Thomas & Bowers' No. 1 H. W. Etz, 2,310 ft. from N and 330 ft. from W lines, Sec. 13-16-30. Drlg. 3,059 ft.

Dona Ana County

Picacho O. & G. Co.'s No. 12 Armstrong, Sec. 15-23s-1w. S.D. 2,621 ft.
Slack & Mahres' No. 1 Simmons, Sec. 35-22s-5e. T.D. 2,785 ft.; S.D.O.

Chaves County

Farrar-Jones-Cunningham's No. 1 Samples, 330 ft. from S and E lines, Sec. 1-7-27. S.D.R. 98 ft.
T. S. Stanfield's No. 1 Bogle, 330 ft. from N line and 2,310 ft. from E line, Sec. 27-13-25. Drlg. 1,439 ft.

Lunu County

O.D. Berry's No. 2 Berry, Sec. 33-22-10. S.D.O. 140 ft.

Lea County

J. D. Barefield's No. 2 Stroup, 1,980 ft. from N and E lines, Sec. 12-18-32. Drlg. 3,180 ft.
Stogner & Weiner's No. 1 State, SE SE Sec. 30-12-32. U.R. 12½-in. csg. at 530 ft.; T.D. 575 ft.

Otero County

Ernest's No. 1 Ernest, Sec. 20-25-7. Drlg. 2,985 ft.
Otero Oil Co.'s No. 1 State, SE NW Sec. 5-22-10. C.O. 825 ft.

Socorro County

Joiner Oil Corp.'s No. 1 Belen grant, 2,310 ft. N and W lines, Sec. 16-3-1. S.D. 600 ft.

SOUTHEAST NEW MEXICO COMPLETIONS

Chaves County

A wildcat, Caudell & French and Grastroff's No. 1-A Smith, NE NE Section 1-4-29, abandoned at 3,686 ft. A wildcat, G. H. Cowden's No. 1 Brunson, NW NW Section 27-9-30, abandoned at 225 ft.

Eddy County

In the Loco Hills field, Continental Oil Co.'s No. 1-N-2 State, NW SW Section 2-18-29, 2,636-55 ft., 76 bbl. in 3 hours through open tubing after shot. C. J. Kleiner's No. 4 Watson & Smith, NE SE Section 4-18-29, 2,525-52 ft., 310 bbl. daily through ½-in. choke after shot. Me-Tex Oil Co.'s No. 1 Travis, NE SE Section 6-18-29, abandoned location. R. W. Fair's No. 7 Brainard, NE SE Section 10-18-29, 2,617-35 ft., 90 bbl. oil in 6 hours through open tubing after shot. Continental Oil Co. and Martin Yates III's No. 2 Brainard, SW NW Section 11-18-29, 2,645-58 ft., 81 bbl. in 5 hours through 38/64-in. choke after shot. Montgomery's No. 2 Saunders, NW NW Section 12-18-29, 2,652-83 ft., 49 bbl. daily pumping after shot. Allen-Pope-Fair's No. 3-B State, NE NE Section 16-18-29, plugged and abandoned at 2,766 ft. Banner Oil Co.'s No. 1 Miller, SE NE Section 4-18-29, 2,545-88 ft., 72 bbl. in 18 hours through open tubing after shot.

In the Red Lakes area, Sam Sanders' No. 1 Berry, NE NE Section 24-17-28, 493-519 ft., 15 bbl. daily, pumping, after acid. R. J. Johnston's No. 2 Travis, SW NW Section 26-17-27, plugged and abandoned at 621 ft. In the Jackson field, R. R. Wooley's No. 3-D Wooley, SE NW Section 31-17-30, 2,794-2,811 ft., 250 bbl. daily flowing through open tubing after shot. Aston & Fair's No. 1-B State, NE SW Section 32-17-30, plugged and abandoned at 2,934 ft.

Lea County

In the Vacuum field, Magnolia Petroleum Co.'s No. 56 State-Bridges, NE SE Section 14-17-34, 4,595-4,670 ft., 121 bbl. daily through open tubing after shot. Magnolia Petroleum Co.'s No. 57 State-Bridges, NW NW Section 23-17-34, 4,597-4,700 ft., 254 bbl. daily through open tubing after shot.

In the South Eunice field, Cities Service Oil Co.'s No. 2-N State, NE SW Section 2-22-36, 3,700-3,810 ft., 374 bbl. in 7 hours through ¾-in. choke, naturally. Continental Oil Co.'s No. 6-E-17 State, SW SW Section 17-22-36, 3,820-40 ft., 54 bbl. with 2 per cent sulfur water daily, naturally. Ohio Oil Co.'s No. 16 State-McDonald, SE NW Section 13-22-36, 3,662-3,790 ft., 90 bbl. in 6 hours through open tubing, naturally. In the Mattix field, Gulf Oil Corp.'s No. 2 Holt-State, SE SW Section 16-24-37, 3,393-3,550 ft., 7 bbl. daily through ½-in. choke after shot.

In the Skelly field, R. Olsen's No. 1-A Blinebry, SE NE Section 30-23-37, 3,552-3,636 ft., 155 bbl. in 30 hours. Gulf Oil Corp.'s No. 1-C Cole-State, SE NE Section 32-22-37, 3,550-3,700 ft., 6½ bbl. daily, pumping, after shot. Stampfli & Martin's No. 2 Glier, SE NE Section 33-22-37, 3,565-3,702 ft., 65 bbl. daily flowing through open tubing after shot.

In the Penrose field, Humble Oil & Refining Co.'s No. 5 Greenwood, NE SE Section 9-22-37, 3,662-3,725 ft., 128 bbl. in 8 hours through ⅞-in. choke after acid. Gulf Oil Corp.'s No. 2-A Cole-State, NW SW Section 16-22-37, 3,675-3,710 ft., 27 bbl. oil and 1 bbl. water in 18 hours. Rodman & Clower's No. 1 Humble-State, NE SE Section 29-22-37, 3,535-3,678 ft., 60 bbl. daily flowing through open tubing after shot.

In the Hardy field, Two-States Drilling Co.'s No. 2 Marshall, SE SW Section 27-21-37, 3,676-3,738 ft., 50 bbl. daily, pumping, after shot.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc.'s No. 2 North Albuquerque, NE SE NW Sec. 19-11n-4e. S.D. 4,710 ft.
Norins Realty Co., Inc.'s No. 2 Pajarito, Sec. 22-9n-1e. S.D. 2,000 ft.

McKinley County

Petroleum Products Corp.'s No. 7 Hospah, C SW SW Sec. 36-18n-9w. Spd. to 50 ft.; S.D. acct. weather.

San Juan County

Angel Peak Oil Co.'s No. 10-B, C NW SE Sec. 24-28n-11w. Drlg. below 700 ft.
Claude Carroll's No. 1 Cornell, C SE NE Sec. 11-29n-12w. M.I.C.T. for test to gas sd.
Kutz Deep Test, Inc.'s No. 1 Govt., C NW NW Sec. 28-28n-10w. Drlg. 825 ft.
Continental Oil Co.'s No. 100 Rattlesnake, SE NW NE Sec. 2-29n-19w. T.D. 7,407 ft.; pmpd. 62 B.O. and 532 B.W. in 24 hrs.; trying to S.O.W.

COLORADO

Custer County

Henry Donnelly's No. 1 Hodges, SE NE Sec. 26-21s-69w. Dpnd. to 1,662 ft.; S.D. for csg.

El Paso County

F. F. Hintze et al's No. 1 State, CEL SE SE Sec. 16-11s-66w. S.D. 1,025 ft.

Huerfano County

I. E. Sideman-White et al's No. 1 Martinez, C SW NE Sec. 33-26n-67w. S.D. 1,000 ft.

La Plata County

Nick Spatter's No. 1-X Bryce, C SW SW Sec. 31-33n-9w. Drlg. gr. sh. and L. shls. 3,335 ft.

Montezuma County

McElmo Oil Co.'s No. 1 West, NE NW NE Sec. 31-36n-17w. S.D. 5,285 ft.

Park County

South Park Oil Co.'s No. 1 Leman, NE NE SE Sec. 34-11s-75w. Drlg. 7,210 ft.

Rio Blanco County

W. L. W. Royalty Corp.'s No. 1 Rector, SE Sec. 34-2n-102w. Loc.
Texas Co.-California Co.'s No. 3 Unit, NE NE NE Sec. 27-3n-94w. Drlg. 1,054 ft.

WYOMING

Crook County

Locations have been released for two interesting wildcats in the northeastern corner of the state. Union Oil Co. of California spotted No. 1 Government, SW NE NW Section 3-57n-62w, on the Bull Creek dome on the Colony-Bull Creek line of folding. It is on acreage acquired from Ohio Oil Co. Estimate of drilling depths by Petroleum Information, Inc., as computed on its reconnaissance survey in 1931, put the top of the Mowry at 175 ft., Dakota at 650 ft., Sundance at 900 ft., top of the Minnelusa at 1,950 ft.

The other is a test on the Government Canon structure by the Vickers Petroleum Co. and the Continental Oil Co., to which reference was made last week. Contract has been let to Russell & Mitchell, of Alma, Neb., and it will be drilled with cable tools.

Union Oil Co. of Calif.'s No. 1 Govt., SW NE NW Sec. 3-57n-62w. Loc.; (first report).
Vickers Pet. Co.-Continental Oil Co.'s No. 1 Duncan-

Lobban, NE NW SW Sec. 28-57n-64w. Loc.; prep. to M.I.

Fremont County

Sinclair-Wyoming Oil Co. has released location for an outside well ⅝ mile south and east of the nearest producer in the Big Sand Draw gas field in its No. 12 Unit. It will be drilled with rotary tools.

Sinclair-Wyoming Oil Co.'s No. 12 Unit, SW SE NW Sec. 23-32n-95w. Loc.

Natrona County

General Petroleum Corp.'s No. 1-21-G, on Cole Creek, proved disappointing in the Lakota and Dakota sands at 8,050 ft., total depth, where it swabbed 100 bbl. of fluid per day which ran 40 to 60 per cent water. It is located ¾ mile northwest of the discovery. It had a saturated sand in the Shannon at 4,535-62 ft. and probably will plug back and test that horizon.

Royal Oil Corp.'s No. 1, SW SW SW Sec. 26-35n-80w. Spd. to 100 ft.; (first report).
Connelly Drlg. Co.'s No. 1 State, SW SW NW Sec. 36-36n-81w. T.D. 1,420 ft.; C.O. to res.
General Pet. Corp.'s No. 1-21-G, NW NW NW Sec. 21-35n-77w. T.D. 8,050 ft.; tstg.

Niobrara County

Lance Creek had four completions and one near completion. The most interesting was the Ohio Oil Co.'s No. 8 State-Lamb, NW NW NW Section 36-36n-65w, which again extended the Sundance sand area on the east side of the field. It was completed at 4,240 ft. for 70 bbl. per hour from the basal Sundance at 4,330-40 ft. after going through dry sand at 4,320-30 ft. The 7-in. casing was cemented at 4,325 ft. It is the best well so far completed in the east extension of the Sundance pool which opened up considerable new area in 1939. It is a northeast offset to the Continental Oil Co.'s No. 3 Rodeo-4, which was completed in February last for 168 bbl. per day through the tubing. The new well ran about 80 ft. lower than the Continental well.

Minnelusa Oil Corp.'s No. 1-A Joss, NE SE NW Section 6-35n-65w, on the west side of the field, proved a disappointment in Joss sand, but plugged back and completed in Leo sand for 40 bbl. an hour. It had Joss or lower Leo sand at 5,399-5,428 ft. which flowed 300 bbl. of fresh water per day. It was plugged back to 5,280 ft. where it was completed. This was an old Sundance sand well deepened from 4,080 ft.

Continental Oil Co.'s No. 10-B Schuricht, SE SE SE Section 6-35n-65w, flowed 920 bbl. the first 24 hours through the tubing at 5,288 ft., total depth, from Leo sand topped at 5,213 ft.

Continental Oil Co.'s No. 5 Apex-1, NE SW NE Section 34-36n-65w, an inside well, was completed at 4,158 ft. for 60 bbl. per day from Sundance sand topped at 4,090 ft.

Ohio Oil Co.'s No. 14 Carrie Putnam, a near completion, started off at 5,407 ft. for 277 bbl. in 24 hours from Joss sand and is still testing. Last test showed 450 bbl. in 20 hours.

Minnelusa Oil Corp.-MacKinnie O. & D. Co.'s No. 10 Thompson, NW NW NW Sec. 7-35n-65w. Drlg. 3,415 ft.
Ohio Oil Co.'s No. 14 E. Lamb-Acct. 2, C SW SE Sec. 5-35n-65w. Rig; W.O. rotary.
Continental Oil Co.'s No. 3 E. Rohiff, SE SW NW Sec. 32-36n-65w. Drlg. 1,280 ft.
MacKinnie O. & D. Co.-Minnelusa Oil Corp.'s No. 9 Thompson, NW SE NW Sec. 7-35n-65w. Drlg. 4,020 ft.
Continental Oil Co.'s No. 18 Tom Bell, SE NE NE Sec. 33-36n-65w. Cmtd. 7-in. at 5,272 ft.; W.O.C.
Continental Oil Co.'s No. 7-B Dielman, SE SE NE Sec. 7-35n-65w. Cmtd. 10¾-in. at 315 ft.
Ohio Oil Co.'s No. 16 Putnam, SW SW NW Sec. 4-35n-65w. Rig.; M.I. rotary.
Continental Oil Co.'s No. 6-B Dielman, NE SW NW Sec. 8-35n-65w. Cg. in sat. Leo sd. at 5,471 ft.
Ohio Oil Co.'s No. 14 Carrie Putnam, NW SW SW Sec. 33-36n-65w. T.D. 5,407 ft.; cmtd. 7-in. at 5,307 ft.; cd. sat. in Joss sd.; tstg.
Ohio Oil Co.'s No. 15 Carrie Putnam, NW NE SW Sec. 33-36n-65w. Drlg. r.b. 4,240 ft.; good sat. in basal Sundance at 3,965-4,047 ft.
H. D. Moore's No. 1 Berggren, SE NW Sec. 23-35n-63w. T.D. 2,526 ft.; rng. 4¾-in. for W.S.O.
Ohio Oil Co.'s No. 8 Converse Sheep, NW SE SW Sec. 32-36n-65w. Cg. 5,325 ft.; flwd. 34 bbl. 1 hr. on D.S. T. at 5,070 ft.; will go to Bell sd.

Park County

Yale Petroleum Co. has made locations for three wells to be drilled with rotary on the north end of the Oregon basin field on the Frisby and Owen tracts originally held by Producers & Refiners Corp., but which were turned to Charles E. Orchard following the receivership for that company. They are considered in proven territory. No. 2 Owens is a west offset which flowed 200 bbl. initially and extended the proven area when finished early in 1930. No. 2 Frisby is west of Producers & Refiners' No. 1 Frisby, which was completed in 1928 for 425 bbl. a day.

Yale Pet. Corp.'s No. 2 Owens, NE SW SW Sec. 29-52n-100w. C.&P.; (first report).
Yale Pet. Co.'s No. 2 Frisby, NW SE NW Sec. 32-52n-100w. R.U.R.; (first report).
Yale Pet. Co.'s No. 3 Frisby, SW NE NE Sec. 31-32n-100w. Loc.
Minnelusa Oil Corp.'s No. 1 Roney, SW SW NW Sec. 24-58n-98w. Cmtd. 10-in. at 397 ft.

Sublette County

Marvel Oil Co.'s No. 1-G Govt., NE NE SE Sec. 28-27n-113w. Drlg. 1,068 ft.; showing for 25 B.O.P.D.
Marvel Oil Co.'s No. 1-H Govt., CEL NE SE Sec. 28-27n-113w. Rdy. to spd.
North La Barge Oil Co.'s No. 3 Govt., SE SE NE Sec. 28-27n-113w. Loc.; (first report).

Sweetwater County

Red Desert Corp., of Denver, has let contract to Manning & Martin, Inc., for a deep test in the Baxter basin field to be drilled with rotary. Location is approximately 3 miles east of the nearest gas well in North Baxter basin and east of a northeast-southwest trending fault zone which passes through Middle Baxter basin. It will go to the Tensleep, if necessary.

The Sinclair-Wyoming Oil Co.'s No. 91-A, SE NE NE Section 10-26n-90w, Lost Soldier field, was completed at 2,080 ft. for 225 bbl. per day on gas lift from the Sundance sand topped at 1,999 ft.

Red Desert Corp.'s No. 1 Aspden, NW SW NW Sec. 34-18n-103w. Loc.
Sinclair-Wyoming Oil Co.'s No. 92-A, NE NW SW Sec. 11-26n-90w. T.D. 2,091 ft. in T. Sundance; R.U.C.T.
Vermilion Oil Co.'s No. 2 Govt., SW SW SW Sec. 7-12n-99w. Drlg. 2,539 ft.

MONTANA

Glacier County

Cut Bank had three completions and one new operation. Santa Rita Oil & Gas Co.'s No. 10 Tribal, NW cor. Section 15-35n-6w, in the Lander pool and on the same trend as a group of wells which produce from the Sunburst sand, including No. 1 Lander, the largest ever drilled in Cut Bank, swabbed 201 bbl. in 18 hours from the Sunburst and Cut Bank sands and was swabbing at the rate of 7 bbl. per hour at the end of the period. Total depth is 2,951 ft. It had 1,200 ft. of oil in the hole from the Sunburst at 2,848-55 ft. The oil then increased to 1,500 ft. after drilling through the Cut Bank at 2,920-50 ft., with the lower sand at 2,936-50 ft. The 7-in. casing was at 2,850 ft. and 120 ft. of 5⅞-in. liner was landed at 2,936 ft.

R. C. Tarrant's No. 5 State, NW NE SE Section 36-34n-6w, had 50 ft. of oil in the hole at 2,912 ft., total depth, from the Cut Bank at 2,865-96 ft. It was shot with 100 qt. and is cleaning out to test.

A. B. Cobb's No. 5 Walberger, CNL NE SE Section 35-35n-6w, bailed only 2 bbl. of oil from the Cut Bank at 2,755-95 ft. and is shut down for orders.

Consolidated Gas Co.'s No. 2 Frary-Tribal-172, NW NW NW Sec. 18-32n-5w. Spdg. 300 ft.; (first report).
Santa Rita O. & G. Co.'s No. 4-A Govt., C SE NE Sec. 8-32n-5w. Spdg.
Glacier Prod. Co.'s No. 5 Miller, C SW NE Sec. 32-33n-5w. Drlg. 1,590 ft.; Colo. 585 ft.; 10¾-in. cmtd. 630 ft.
Glacier Prod. Co.'s No. 4 Bonnett, C SW SE Sec. 4-32n-5w. Drlg. 2,280 ft.
Glacier Prod. Co.'s No. 4 Van Ormer, C SW SE Sec. 8-33n-5w. Drlg. 2,520 ft.
Texas Co.'s No. 4 Tweedy, C SE NW Sec. 21-35n-6w. Drlg. 1,294 ft.; Colo. 660 ft.; 10¾-in. cmtd. 688 ft.
Texas Co.'s No. 1 Unit 11, C NE SW Sec. 11-35n-6w. Drlg. 2,715 ft.
Annand Hutching's No. 4 Federal Land Bnk., 2,310 ft. W. 2,310 ft. S lines, Sec. 11-34n-6w. Drlg. 2,765 ft.
A. B. Cobb's No. 5 Van Demark, CSL SE NE Sec. 35-35n-6w. Loc.
Helmac, Tr.'s No. 3 Govt., Lot 3, Sec. 32-33n-5w. R.O.G.
Cobb-Reagan's No. 4 Jackson, SW SW SE Sec. 5-32n 6w. R.U.R.

Petroleum County

H. Clark Rowland's No. 1 Brundige-Mink, NE SE NW Sec. 35-14n-25e. T.D. 722 ft.; 8⅝-in. on bttm.; prep. to res.

Toole County

The Superior Petroleum Co.'s No. 3 Haugen, on the west side of Kevin-Sunburst, picked up a break in the lime at 1,854-60 ft. and began flowing about 10 bbl. an hour. The contact was dry. Total depth is 1,860 ft. It has not been tested.

Henry Vander Pas' No. 4 Cedar Creek, CWL SW SE Sec. 31-35n-1w. Spdg. 150 ft.; (first report).
Coolidge & Coolidge's No. 9 Shaw, SE NE NE Sec. 35-36n-2w. S.D. 970 ft.; cmtd. 8¼-in.
Coolidge & Coolidge's No. 8 Shaw, NW NE NE Sec. 35-36n-2w. Drlg. 435 ft.
Rimrock Oil Co.'s No. 5 Schmidt, SW SE NW Sec. 29-35n-3w. Drlg. 1,000 ft.
M. F. Telee's No. 1 Blumberg, NE cor. Sec. 32-35n-3w. Drlg. 750 ft.
S. V. Day's No. 1 Halter, C NE SE Sec. 17-35n-2w. S.D. 140 ft.
Fulton Pet. Co.'s No. 4 Thompson, CNL SW NE Sec. 28-35n-3w. Drlg. 1,720 ft.
G. & A. Oil Co.'s No. 2 Alrick, C NW NE Sec. 28-35n-3w. Drlg. 1,610 ft.; 5⅞-in. cmtd. at 1,468 ft.
Big West Oil Co.'s No. 1 Ellingson, NW SE SW Sec. 14-35n-3w. Drlg. 800 ft.
Prevol & Shay's No. 6 Govt., NE NW SW Sec. 11-35n-3w. R.O.G.
Crumley & Son's No. 18 Fryberger, CEL SE SW Sec. 24-35n-3w. Drlg. 350 ft.
A. Beardslee's No. 13 Swears, CEL SE NW Sec. 9-35n-2w. Drlg. 1,250 ft.; 8¼-in. at 1,100 ft.

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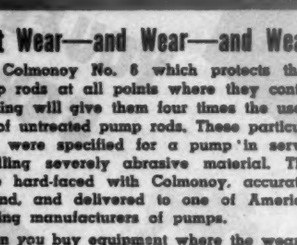

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G. H. Lund's No. 1 Dahlen, C SE NW Sec. 35-35n-4w. T.D. 2,063 ft.; more wtr.; rng. sqze. job.
R. G. Parrant's No. 1 Holbrook, C NW NE Sec. 2-36n-3w. S.D. 1,445 ft.
Casper T. Olen's No. 9 Engemoen, NW NE NW Sec. 14-35n-2w. S.D. 70 ft.
L. J. Yenly's No. 14 Shaw, NW SW NE Sec. 35-36n-2w. R.O.G.
Superior Pet. Co.'s No. 3 Haugen, C NE NE Sec. 11-35n-3w. T.D. 1,860 ft.; flwg.
Lemac Oil Co.'s No. 1, C NE NE Sec. 27-36n-2w. T.D. 1,906 ft.; contact 1,900-06 ft.; C.O. and prep. to acd.
Morton & Shaw's No. 2 Ellingson, SE NE NW Sec. 23-35n-3w. S.D. 1,200 ft.

Kansas Fields

(Continued from Page 80)

NW Section 13-11-18w, was completed for maximum potential of 3,000 bbl. of oil daily in Arbuckle lime at 3,354-62 ft., total depth. This well was given one of the largest calculated potentials of any well in Kansas.

Gulf Oil Corp.'s No. 1 Oliver, C N½ NE NE Section 10-12-18w, Walter area, had Arbuckle lime at 3,667-71 ft., total depth, and pumped 39 bbl. of oil and 9 bbl. of water daily.

Dickey Oil Co.'s No. 8 Carmichael A, C N½ NE NW Section 18-11-17w, a recent completion in the Burnett pool, was bottomed at 3,355 ft., and made daily potential of 3,000 bbl. of oil. Shell Oil Co., Inc.'s No. 32 Rumsey, NW SE NE Section 23-11-17w, Bemis field, was bottomed at 3,497 ft., and made potential of 3,000 bbl. Cities Service Oil Co.'s No. 14 Hall B, SE NW SW Section 26-11-17w, Bemis field, total depth 3,466 ft., was completed for maximum potential of 3,000 bbl. Lario Oil & Gas Co.'s No. 3 Walter B, C S½ SW SW Section 2-12-18w, Walter area, was completed for 3,000 bbl. daily at 3,630 ft., total depth. Darby Petroleum Corp.'s No. 5 Hadley A, NW SE SE Section 12-11-18w, was dry and abandoned at 3,136 ft., total depth.

New work in Ellis County: Dickey Oil Co.'s No. 2-B Henderson, C W½ SW SW Section 6-11-17w, cellar; Bay Petroleum Corp.'s No. 2 Ridler, C E½ NE NE Section 12-11-18w, ponds; Phillips Petroleum Co.'s No. 8 Hendricks, C S½ SW NE Section 13-11-18w, cellar; J. C. Shaffer's No. 1 Oswald, C W½ SE SE Section 11-12-16w, moving in material.

Wildcat Completions

C. E. Timm's No. 1 Kelley, SE NW SW Section 20-27-4, an old Butler County wildcat, was deepened to Arbuckle lime at 3,024 ft., total depth 3,040 ft., and was dry and abandoned.

H. H. Royer's No. 1 Kroch, NE NE NW Section 28-18-4e, Marion County wildcat, topped Mississippi lime at 2,431 ft., had a hole full of water and was abandoned at 2,452 ft.

A. A. Hinze's No. 1 Hester, NW SW NE Section 1-22-12, wildcat in Greenwood County, was temporarily abandoned at 510 ft., total depth.

Lauck & Moncrief's No. 1 Ehler, C W½ SW NW Section 35-16-10w, wildcat south of the Stoltenberg pool, Ellsworth County, was completed at 3,322 ft., total depth, pumping 303 bbl. of oil in 8 hours and making potential of 911 bbl. daily. Gravity of the oil was 44°. It had Arbuckle lime at 3,297 ft., and was acidized.

Marylyn Oil Co.'s No. 1 Burke, C S½ N½ NW Section 27-24-11, Greenwood County wildcat, was dry and abandoned in Mississippi lime at 1,875 ft.

Butler County

Sinclair Prairie Oil Co.'s No. 9 Watts, NW SE SE Section 13-26-4, Eldorado field, Barton County, had Viola lime at 2,566-80 ft., total depth, was acidized and pumped 135 bbl. of oil, initially.

Barber County

W. J. Coppinger's No. 1 Whelan, C SW NW Section 29-31-11w, which recently extended the Whelan pool, Barber County, ½ mile northwestward, was completed at 4,385 ft., total depth, for initial potential of 804 bbl. of oil. Chat pay was topped at 4,331 ft.

Miscellaneous Completions

Wells recently completed included the following:

Rooks County: J. H. Harvey's No. 1 Smith, C W½ SW SE Section 12-9-17w, Westhusin area, total depth 3,416 ft., 69 bbl. of oil; Hordendorf's No. 1 Westhusin, C E½ NE NE Section 14-9-17w, dry and abandoned at 3,302 ft.

Stafford County: Cities Service Oil Co.'s No. 2 Sifers B, NW NW SE Section 9-21-11w, Snider pool, total depth 3,397 ft., 1,506 bbl.; Transwestern Oil Co.'s No. 1 Johnson, C E½ SE SE Section 3-24-11w, Zenith pool, total depth 3,776 ft., 1,442 bbl.; Stanolind Oil & Gas Co.'s No. 7 Harbeson, C S½ N½ NW Section 11-24-11w, total depth 3,793 ft., 3,000 bbl.

Johnson County

F. J. Kasper, trustee's No. 1 Moore, NW SE Section 33-13-22, Johnson County, in an area where same operator completed a gas discovery well a few weeks ago was bottomed at 680 ft., plugged back and completed in Knobtown sand for an estimated 100,000 cu. ft. of gas. The Hertha formation was found 6 ft. lower than in the discovery well, and more sand and gas was found in the Knobtown zone than in the discovery. Base of the Lexington was found about 14 ft. lower and when the Squirrel sand was found hard and dry, operators decided the well was checking too low to find production in Bartlesville sand, so plugging back followed. Several wells in the Olathe district have been producing from Knobtown zone for as long as 25 years. Operators plan to correlate in several directions from the No. 1 Kaths, discovery well in Section 3-14-22, and if results justify plan to drill one or more wells to the deeper formations. Considerable leasing is reported in that part of Johnson County.

West Texas Fields

(Continued from Page 87)

locations. In the North Cowden field, Broderick & Calvert's No. 10-A Holt, 4,234-4,440 ft., 603 bbl.

A wildcat, R. H. Gill's No. 1 J. E. Parker, topped anhydrite 1,380 ft., topped Yates 2,690 ft., topped Yates lime 3,740 ft., dry and abandoned at 5,760 ft.

Gaines County

In the Seminole field Adams & Bradley's No. 1 Crain, 5,345 ft. total depth, 342 bbl. (old well drilled deeper). Atlantic Refining Co.'s No. 4-B Riley, 5,180-5,261 ft., 627 bbl. In the Cedar Lake field, Stanolind Oil & Gas Co.'s No. 1 T. S. Riley, 4,762-4,864 ft., 11 bbl.

Hockley County

In the Slaughter field, Texas Co.'s No. 8 Slaughter, 4,960-90 ft., 759 bbl.

Howard County

In the Snyder field, Fleming-Kimbell Corp.'s No. 1 P. Jones, 2,858-2,862 ft., 236 bbl.

In the Chalk field, S. S. Owens' No. 1 G. G. Wright, abandoned but not plugged at 4,143 ft.

Loving County

A wildcat, J. E. Whitesides' No. 1 fee, topped anhydrite 740 ft., topped Delaware lime 5,214 ft., topped Delaware sand 5,240 ft., dry and abandoned at total depth of 5,284 ft.

Pecos County

In the Lehn area, D. R. Criswell's No. 1 J. L. Sullivan, dry and abandoned at total depth of 1,833 ft.

Scurry County

In the Sharon field, Magnolia Petroleum Co.'s No. 6 McClure, 2,298-2,528 ft., 52 bbl. J. B. Stoddard's No. 5 McClure, 2,265-2,443 ft., 185 bbl.

Ward County

In the Sealy field, Magnolia Petroleum Co.'s No. 3-43 Sealy, 2,913-38 ft., 42 bbl. In the Estes field, S. W. Richardson's No. 3-A University, 2,535-2,749 ft., 317 bbl.

Winkler County

Bates-Reading Oil Co.'s No. 4-C Cowden, 2,765-2,995 ft., 205 bbl.

Yoakum County

In the Wasson field, Aloco Oil Co.'s No. 7 Hovencamp, 4,885-5,105 ft., 1,972 bbl. Anderson-Prichard Oil Corp.'s No. 1 Nelson, 4,930-5,149 ft., 1,158 bbl. Honolulu Oil Corp.'s No. 11-695 Bennett, 5,000-5,225 ft., 639 bbl. Honolulu Oil Corp.'s No. 5-X-804 Wilder, 4,970-5,157 ft., 1,267 bbl. Humble Oil & Refining Co.'s No. 3 Bennett, 5,002-5,190 ft., 610 bbl. Magnolia Petroleum Co.'s No. 11 Mahoney, 4,930-5,180 ft., 1,330 bbl. Shell Oil Co., Inc.'s No. 7-A Baumgart, 4,880-5,190 ft., 905 bbl. Shell Oil Co., Inc.'s No. 2 Kendrick, 4,900-5,115 ft., 1,027 bbl.

WEST CENTRAL TEXAS

FORT WORTH, Tex., Apr. 15.—An indicated 1¾-mile north extension to the Fagg field in Stephens County; the definite opening of a small pool in Jones County; the staking of five wildcat tests in as many

counties, and the launching of a three-well wildcat drilling program for little-explored Hamilton County, made up a busy week in the West Central Texas district.

About 1¾ miles due north of the George E. Fagg discovery well which was completed for 232 bbl. daily from the lime drilled from 4,028-30 ft., Panhandle Refining Co.'s No. 1 Magers, S½ SE Section 1, Block 3, S.P. Survey, was preparing to drill into the pay horizon as the week closed. Some saturation was topped at 3,788 ft. and streaked shows of oil were found in drilling to the present total depth of 3,842 ft. The operator expects the main body of the pay at about 4,000 ft. About 1⅛ miles southeast of the No. 1 Magers and a similar distance northeast of the Fagg discovery well, Jones Brothers Drilling Co.'s No. 1 T.X.L., NE cor. SE Section 3, Block 3, S.P. Survey, was last reported drilling below 2,500 ft.

Jones Discovery

Jones County's indicated discovery well of several weeks ago has been gaged at 6 bbl. hourly or at the rate of about 144 bbl. daily. The well is Thomas D. Humphrey's No. 1 W. V. Triplett, J. J. Hughes Survey 291, about 3 miles northwest of the Hawley field. The producing gage was made both flowing and pumping from the Cook sand pay at 2,185-93 ft. The small potential is substantiated by the fact that no water was showing. The discovery operator plans a development program for his 514 acres surrounding the well. Ungren & Frazier of Abilene hold the offset acreage to the east of the discovery well.

Wildcat Locations

Wildcat locations were made in Comanche, Jones, Taylor and Shackelford counties, the latter accounting for two. Comanche County's new wildcat is a shallow 900-ft. test, H. S. Bassart's No. 1 J. H. Tate, 150 ft. from the north and west lines of the J.M. Robinson Survey, Abstract 1170.

In Jones County M. R. Mead has located No. 1 E. Hicks in the SW cor. Section 5, O.A.L. Survey. It is contracted to 3,500 ft. to test the Palo Pinto lime.

A 2,500-ft. test for Taylor County is Green & Owens' No. 1 J. Bettes, R. Ortiz Survey 19. It will test all possible pay horizons in the Cisco series.

Shackelford County's two tests were both relatively shallow ones, 1,200 ft. and 600 ft. being the contract depths. The 600 ft. test is by L. Mollenkopf as No. 1 E. Jemeyson, 4,600 ft. from the southwest line and 467 ft. from the nowthwest line of Section 489, T.E.&L. Survey. The 1,200-ft. test is by Fain-McGaha Oil Corp. and will be No. 1 T. W. Lee, 1,320 ft. from the north and 220 ft. from the east lines of Section 38, Block 12, T.&P. Survey.

Hamilton County

After having spent more than a year assembling a drilling block of 37,000 acres in Hamilton County, Bob Waters announced last week that three exploratory tests would be drilled on the block. Material is being moved in for the first operation which is to be on the 203-acre Art Oates tract in the Francis Hughes Survey, 7 miles northeast of the town of Hamilton. The objective of the three tests to be drilled is the Ellenburger lime of Ordovician age expected at about 4,500 ft. The operators' other two tests in the block will be on the J.T. ranch, the first to be about 2½ miles northeast of the No. 1 Oates and the next still farther north. Both of the latter operations will be in the Trinkle & Moore Survey. The drilling contracts for the tests have been let.

WEST CENTRAL TEXAS COMPLETIONS
(24-hour gages)

Brown County

In the Cross Cut field, Goss' No. 1 Hickman, dry and abandoned at 1,290 ft. In the Fry field, Ed Selvidge's No. 1 George, dry and abandoned at 1,335 ft.

Callahan County

A wildcat, Green & Owens' No. 1 Murry, Jacob Trask Survey 261, dry and abandoned at 1,821 ft.

Jones County

In the Lewis field, Fain-McGaha Oil Corp.'s No. 9 Lewis, 1,916-34 ft., 350 bbl. In the Noodle Creek field, J. B. Robert's No. 1 Tiner, dry and abandoned at total depth of 3,222 ft.

Shackelford County

In the Gorsuch field, Gorsuch Oil Co.'s No. 5 Gorsuch, 1,514-24 ft., 50 bbl. In the Ghio field, Loggie & Arendt's No. 11 Ghio, 589-600 ft., 20 bbl. In the Sedwick field, Roark's No. 3 Hickman, 657-66 ft., 30 bbl. In the Cook field, Roeser-Pendleton, Inc.'s No. 7-B-113 Cook, 1,556-68 ft., 290 bbl.

Stephens County

In the Stribling field, Ed McAdams' No. 1 Sloan, dry and abandoned at total depth of 3,636 ft.

Taylor County

A wildcat, Turner's No. 1 Sheppard, Section 19, B.A.L. Survey, dry and abandoned at total depth of 1,800 ft.

TEXAS PANHANDLE COMPLETIONS
(24-hour gages)

Carson County

Magnolia Petroleum Co.'s No. 74 fee (224), 3,088-3,120 ft., 503 bbl. Northern Natural Gas Co.'s No. 2 M. B. Hodges, 2,720-2,863 ft., 10,800,000 cu. ft. of gas. Texas Co.'s No. 22 Boney, 3,052-3,120 ft., 466 bbl. Shell Oil Co., Inc.'s No. 2-B Cooper, 3,145-3,204 ft., 234 bbl. Texhoma Natural Gas Co.'s No. 5-G Burnett, 2,535-2,890 ft., 13,838,000 cu. ft. of gas.

Gray County

Gulf Oil Corp.'s No. 4 Merten, 3,204-90 ft., 238 bbl. Northern Natural Gas Co.'s No. 1 O. M. Hendrick, 2,560-2,650 ft., 19,700,000 cu. ft. of gas.

Hutchinson County

Stanolind Oil & Gas Co.'s No. 11 Watkins B, 2,795-2,886 ft., 343 bbl. Texas Co.'s No. 23 Pond, 2,915-3,048 ft., 635 bbl.

Moore County

Phillips Petroleum Co.'s No. 1 Stallwitz, 3,230-90 ft., 23,800,000 cu. ft. of gas.

Wheeler County

Elbar Oil Co.'s No. 14 Noel, 2,401-40 ft., 216 bbl Christie-Hickman's No. 1 Derrick, 2,433-70 ft., 56 bbl.

East Texas Fields

(Continued from Page 81)

southeast corner of a 1,234-acre tract. Contract depth of the test was not announced.

Chapel Hill

After testing for several weeks in the Pettit lime section, Sun Oil Co.'s No. 1 Huddle, second well to be drilled in search of oil production at Chapel Hill in Smith County, is showing for a distillate and gas well from the Rodessa section. From tests through perforations from 7,385 to 7,410 ft., the well made 25 bbl. of 58-gravity dark distillate under pressures of 350 lb. on tubing and 675 lb. on casing. The gas volume was estimated to be 250,000 cu. ft daily. The test is bottomed at 7,683 ft., plugged back from a total depth of 8,226 ft.

Wild Gasser

What to do with the R. H. Williamson and others' No. 1 O. G. Rogers, wild gas well in Anderson County, is a problem. The well blew out unexpectedly in the middle of February. It first blew only gas, a volume estimated at more than 5,000,000 cu. ft. daily and uncontrolled. Several attempts were made by professional wild-well fighters to cap the gasser, but all failed. The well has not been capped but the gas has been piped through two lines to a point some distance from the well where it has been ignited and is burning. Since coming in in February a large flow of distillate has developed, amounting to about 125 bbl. daily. This is being saved by a separator.

Proposals to pump mud into the hole or to drill relief offsets have been condemned by engineers as dangerous, and the latest developments are that the District Court has appointed a receiver for the well, pending the outcome of a title suit over the well's ownership. Meanwhile the distillate is recovered as provided in a special operating permit from the Railroad Commission and the gas is burned. It has been estimated that billions of cubic feet of gas has been wasted since the well blew out.

EAST TEXAS FIELD COMPLETIONS
(1-hour gages)

Gregg County—Longview Area

Coastal Development Co.'s No. 21 Fluellan, 3,604-19

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ft., 45 bbl. Coastal Development Co.'s No. 22 Fluellan, 3,683-91 ft., 45 bbl. Magnolia Petroleum Co.'s No. 27 R. B. White, 3,510-33 ft., 92 bbl.

Gregg County—Kilgore Area

American Liberty Oil Co.'s No. 46 Sabine River Tract No. 1 3,533-45 ft., 60 bbl. Sinclair Prairie Oil Co.'s No. 64 A. A. King, 3,446-3,506 ft., 60 bbl.

EAST CENTRAL TEXAS COMPLETIONS

(24-hour gages)

Anderson County

In the Cayuga field Carter-Gragg Oil Co.'s No. 5 Goode, 3,946-4,005 ft., 85,000,000 cu. ft. gas.

Franklin County

In the Talco field Humble Oil & Refining Co.'s No. 14 Penn-fee, 4,270-80 ft., 379 bbl., pumping. Humble Oil & Refining Co.'s No. 15 Penn-fee, 4,170-4,282 ft., 492 bbl., pumping.

Freestone County

In the Cayuga field Stanolind Oil & Gas Co.'s No. 1 Moody, 3,993-4,025 ft., 200 bbl.

Henderson County

A wildcat, Dilworth Hager's No. 2 Coleman, R. S. Rayburn Survey, 3½ miles northwest of La Rue, topped Woodbine sand 4,182 ft., dry and abandoned.

NORTH TEXAS COMPLETIONS

Archer County

Cable Oil Co.'s No. 10 Charles H. Thuman, 971-76 ft., 20 bbl. Chapman & McFarlin's No. 10 L. F. Wilson C, 3,822-46 ft., 1,200 bbl. Cochran and others' No. 1 Dr. J. A. Little B, 4,340-4,407 ft., 1,320 bbl. Cox & Hamon's No. 4 O. T. Anderson, 4,355-4,415 ft., 1,140 bbl. Deep Oil and others' No. 7 Dr. J. A. Little, 4,336-95 ft., 720 bbl. H. S. Gray's Nos. 5-A and 2-B H. W. Taylor, abandoned location. C. T. Hedges' No. 22 T. L. Griffin A, 1,283-99 ft., 11 bbl. King Oil Co.'s No. 13 M. E. Rogers A, 1,279-92 ft., 15 bbl. Peterson and others' No. 32 L. F. Wilson B, 4,274-4,330 ft., 1,400 bbl. Petroleum Production Co.'s No. 1 F. Johnson B, 4,284-4,343 ft., 3,250 bbl. Guy Scholl's No. 1 C. L. Abercrombie, 1,272 ft., dry. Texas Co.'s No. 38 L. F. Wilson A, 4,355-4,400 ft., 1,200 bbl. E. D. Willis and others' No. 1 J. R. Garvey, 848 ft., dry.

Clay County

Bobby Burns' No. 5 E. H. Hamilton, 1,123 ft., dry. E. N. Costley and others' No. 3 W. J. McInnes B, 1,074-88 ft., 200 bbl. E. N. Costley and others' No. 2 C. T. Taylor estate B, 1,156 ft., dry. C. L. Gannaway's No. 8 M. A. Stevenson, abandoned location. N. H. Martin & Son's No. 1 C. T. Taylor, 1,180 ft., dry. W. H. Metzner's No. 8 Taylor and others, 1,238 ft., dry.

Cooke County

Bridwell Oil Co.'s No. 15 J. R. Parkey, 723-40 ft., 20 bbl. Bridwell Oil Co.'s No. 16 J. R. Parkey, abandoned location. C. & L. Oil Co.'s No. 18 J. J. Perkins, 765-75 ft., 100 bbl. Cox & Hamon's No. 7 K. New B, 4,764-4,806 ft., 700 bbl. Mudge Oil Co.'s No. 1 S. L. Seagraves, abandoned location. Sinclair Prairie Oil Co.'s No. 10 P. McGeorge, 4,869-4,933 ft., 900 bbl. Texas Co.'s No. 6 M. Kessler, 855-75 ft., 15 bbl.

Foard County

Texas Co.'s No. 19 L. K. Johnson, 3,575-80 ft., 75 bbl.

Jack County

B. Fleeger's No. 3 G. E. Winn and others, 3,248-3,300 ft., 365 bbl. Three Bee Investment Corp.'s No. 1 D. S. Scrogum, 3,090-3,125 ft., 1,100 bbl.

Wichita County

C. E. Beavers' No. 1 O. L. Clark, 1,470 ft., dry. Bell Oil & Gas Co.'s Nos. 12 and 13 J. B. Evans B, abandoned locations. D. H. Bolin's Nos. 8 and 9 D. R. Preston, abandoned locations. Consolidated Oil Co.'s No. 7 Mrs. Julia James, 3,940-50 ft., 465 bbl. Consolidated Oil Co.'s No. 13 Mrs. J. James, abandoned location. J. M. Corbett's No. 3 F. C. Dodson, 605 ft., dry. Deep Oil Development Co.'s No. 4 Munger H, 3,767-3,800 ft., 400 bbl. E.C. Oil Co.'s No. 5 W. L. Hodges A, 3,719-3,800 ft., 1,000 bbl. F. W. Merrick, Inc.'s No. 1 O. M. Jones, 3,975-4,100 ft., 775 bbl. W. B. Omohundro and others' No. 1 I. H. Kempner and others, 5,650 ft., dry. Owens Oil Co.'s No. 5 H. B. Hearn, 500-10 ft., 10 bbl. Petroleum Oil Investment Co.'s No. 9 L. P. Douglas C, 786-801 ft., 5 bbl. George Proctor and others' No. 50 Ed Foster A, 1,065 ft., dry. Ross Drilling and King's No. 4 Waggoner Brothers, abandoned location. Texas Co.'s No. 4 Fred Thom, 3,794-3,853 ft., 676 bbl. Tide Water Associated Oil Co.'s No. 3 Charles Pettit, 3,820-3,917 ft., 650 bbl.

Wilbarger County

W. F. Palmer's No. 1 W. T. Waggoner, 1,572 ft., dry. Phillips Petroleum Co.'s No. 3 M. Servatius, 3,175-3,209 ft., 578 bbl. Pois and others' No. 1 Streit Brothers B, abandoned location. Texas Co.'s No. 13 W. T. Waggoner D, 2,360-74 ft., 20 bbl.

Young County

H. Craig's No. 2-B Schlegel A, 1,138 ft., dry. H. Craig's No. 2 C. J. Taack, 695 ft., dry. Curtis and others' No. 1 J. A. Cole, abandoned location. S. D. Glover's No. 1 C. E. Luton, 741 ft., dry. T. C. Hadley's No. 1 W. W. Farmer, 770 ft., dry. L. A. Long and others' No. 5 E. C. Stovall, 2,516-35 ft., 100 bbl. E. D. Willis' No. 1 T. J. Routon, 701 ft., dry.

La.-Ark. Fields

(Continued from Page 78)

Urania—La Salle Parish

Georgetown Oil Co.'s No. 4 Baldridge, Section 11-9-1e, pumping 15 bbl., total depth 1,509 ft.

Converse—Sabine Parish

N. B. Livingston's No. 1 Bowman Hicks, 660 ft. southeast cor. of SW Section 36-9-14, total depth 3,535 ft., plugged back total depth 3,170 ft., pumping estimated 25 bbl. oil and 30 bbl. salt water.

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Wildcat—Madison Parish

Gulf Refining Co.'s No. 1 Sondheimer, 175 ft. north, 35 ft. west of C Section 33-18-12, dry and abandoned, 5,545 ft.

Monroe—Union Parish

Memphis Natural Gas Co.'s No. 1 Barr, Section 3-21-2, 1,500,000 cu. ft. of gas, rock pressure 885 lb., total depth 2,200 ft.

Cotton Valley—Webster Parish

Hunt Oil Co.'s No. 5 Stewart, 660 ft. north, 560 ft. east of SW cor. NW Section 29-21-10, D sand 8,462-83 ft., set 7-in. casing 8,570 ft., perforated 8,468-78 ft., 504 bbl., ¼-in. choke, tubing pressure 900 lb., casing pressure 1,700 lb., total depth 8,613 ft.

ARKANSAS COMPLETIONS

Columbia County Wildcat

James Forgotson's No. 1 L. M. Dendy, C SW SW Section 24-17-19, total depth 7,768 ft., dry and abandoned.

Magnolia—Columbia County

Mid-Continent Petroleum Corp.'s No. 1 R. S. Foster, 100 ft. north of C SE SW Section 24-17-20, 550 bbl., ¼-in. choke, tubing pressure 1,250 lb., casing pressure 1,350 lb., total depth 7,595 ft. Normandie Oil Corp.'s No. 1 D. R. Booth, Section 25-17-20, 552 bbl., ¼-in. choke, tubing pressure 1,300 lb., casing pressure 1,300 lb., total depth 7,620 ft. Shell Oil Co., Inc.'s No. 2 R. S. Foster, C SW SW Section 24-17-20, set 5½-in. casing 7,642 ft., perforated 7,598-7,614 ft. and 7,633-40 ft., 626 bbl., ¼-in. choke, tubing pressure 1,250 lb., casing pressure 1,275 lb., total depth 7,647 ft.

Lewisville—Lafayette County

East Texas Refining Co.'s No. 3-A Warren, C S½ NW NW Section 24-16-24, 24 bbl., ¼-in. choke, total depth 2,585 ft.

Oklahoma Fields

(Continued from Page 86)

T. H. McCasland's No. 5 Horton, NW SE NW Section 8-3n-5w, was a location.

Wildcat Completions

Helmerich & Payne, Inc.'s No. 1 Kramer, NW NW SE Section 24-17-1e, wildcat in Logan County, south of the Coyle pool, had first Wilcox sand at 5,014 ft., second sand 5,145 ft., total depth 5,157 ft., plugged back to 4,855 ft., perforated casing, had a hole full of water and was abandoned.

Tom Nix' No. 2 Warren, NE SE SE Section 4-6-8, Hughes County, failed to find sand and was dry and abandoned at 930 ft.

Margay Oil Co.'s No. 1 Reed, NW NE NE Section 12-6-6, found Wilcox sand at 4,095 ft., was bottomed at 4,105 ft. and was dry and abandoned.

C. P. Williams' No. 1 fee, NE NE SE Section 22-1n-4e, Murray County, found Arbuckle lime at 650-950 ft., total depth, and was dry and abandoned.

Baim & Dutton's No. 1-A Maine, SE NE NE Section 30-17-3e, Lincoln County wildcat, recently was dry and abandoned at 1,507 ft., total depth.

Daisy Drilling Co. recently opened a gas area in Tulsa County at No. 1 Elmore, C E½ E½ NW Section 26-19-13. It was completed for 100,000 cu. ft. of gas at 1,351 ft., total depth.

Creek County

Grimes' No. 25 Hutton, NE NE SW Section 8-17-7, Creek County, had Prue sand at 2,315 ft., total depth 2,350 ft., and pumped 3 bbl. of oil daily. Warren's No. 1 Sewell, NE SE SW Section 35-15-10, had a hole full of water in Wilcox sand at 3,138 ft., total depth 3,154 ft., and was abandoned. Hollifield and others' No. 1 Brown, NW NW SE Section 18-18-10, had Prue sand at 1,940 ft. and was dry and abandoned at 2,023 ft. Ellege's No. 1 Murrell, SE NW SW Section 8-19-9, had Skinner sand at 2,196 ft., total depth 2,242 ft., plugged back to 2,227 ft., was shot and pumped 23 bbl. of oil daily. Johnson's No. 1 Murrell, NE SW SW Section 8-19-9, pumped 28 bbl. of oil daily from Skinner sand topped at 2,201 ft., total depth 2,254 ft., after plugging back to 2,242 ft. and shooting. Curtis Oil Co.'s No. 1 Wilson, SW NW NE Section 30-18-9, was dry and abandoned at 3,057 ft. Strozier Drilling Co.'s No. 6 Anthis, SW SW SE NE Section 36-17-11, recently was completed for 5,000,000 cu. ft. of gas at 2,048 ft., total depth. Sinclair Prairie Oil Co.'s No. 25 Kiefer, S½ S½ NE SE Section 17-17-12, pumped 5 bbl. of oil daily at total depth of 1,537 ft.

Dunn and others' No. 5 Anthis, NW NE SE Section 34-14-10, was a location. Swift's No. 2 Musselem, C SW NE Section 18-18-10, was rigging up machine.

Pawnee-Osage Counties

Abbott's No. 1 Sample, NE SE NE Section 35-20-8, Pawnee County, had Prue sand at 2,075 ft., total depth 2,128 ft., and was dry and abandoned.

Olson Oil Co.'s No. 1 Soldani, NW NW SW Section 24-26-4, Kaw area, Osage County, was shot in sand found at 3,225 ft., total depth 3,273 ft., but was dry and abandoned.

Other recent Osage County completions: D. B. Mason's No. 7 Osage, NW NE SW SW Section 3-24-12, total depth 1,779 ft., abandoned. W. C. Norris' No. 3 Osage, NW SW SE Section 15-21-12, total depth 1,307 ft., 15 bbl. of oil. Magnolia Petroleum Co.'s No. 3 Osage, SW SE SW Section 14-26-6, total depth 2,930 ft., 175 bbl. of oil. Indian Territory Illuminating Oil Co.'s No. 466 Osage, NE NE NW SE Section 29-26-11, total depth 1,804 ft., gaged 1,600,000 cu. ft. of gas daily.

Hyden's No. 1 Mills, SE NE SW Section 20-20-10, Pawnee County, was rigging up machine.

Oklahoma County

Indian Territory Illuminating Oil Co.'s No. 3 Canfield, NE SE SW Section 24-11-3w, Oklahoma City field, had Hoover series at 4,039 ft. and was dry and abandoned at 4,068 ft., total depth.

In Kay County Continental Oil Co.'s No. 2 Walkingsky, C NW SE Section 18-25-2e, Ponca City area, topped chat at 3,845 ft., total depth 3,904 ft., was shot and flowed 20 bbl. of oil daily.

Miscellaneous Completions

Okmulgee County: Wise and others' No. 1-B Sarsar, E½ SE NE SW Section 17-13-11, total depth 3,269 ft., dry and abandoned; J. E. Dow's No. 11 Spurgeon, CSL SE NW Section 13-14-14, total depth 553 ft., 500,000 cu. ft. of gas.

Muskogee County: D. W. Howard's No. 3-A Mallory, CSL SW NW Section 33-15-15, dry and abandoned at 2,194 ft. J. R. Parks' No. 2 Grimstead, NW NE NW NE Section 20-14-19, total depth 1,320 ft., dry and abandoned.

Tulsa County: Krausne and others' No. 1-A Owen, E½ E½ SW SW NW Section 25-18-14, total depth 1,363 ft., dry and abandoned. A Peppis' No. 6-A Bishop, W½ W½ NE SE SW Section 26-19-12, total depth 1,381 ft., 100,000 cu. ft. of gas.

Wagoner County: J. Joseph's No. 1-A Liston, SE NW NW Section 26-17-15, dry and abandoned at 1,047 ft.; G. Sheppard's No. 1 Bankers, NE cor. Section 36-17-17, total depth 1,123 ft., dry and abandoned; Oklahoma Oil Corp.'s No. 1-B Geiger, W½ SE NW Section 12-17-15, bottomed at 978 ft., gaged 350,000 cu. ft. of gas; H. V. Daniels' No. 1-A Reed, SW SW NW NE Section 9-18-15, twin, dry and abandoned at 1,110 ft.; B. G. Goble's No. 1-A McGee, NW NE SE Section 34-18-15, total depth 1,143 ft., dry and abandoned; Knox & Shouse's No. 2 Wallcott, SW NE NW Section 36-18-15, dry and abandoned at 1,029 ft.

New Operations

Thompson Brothers' No. 1 Richardson, NE SE SW Section 10-3s-9e, was location for a 2,550-ft. wildcat test in Atoka County. Kirksey's No. 1 Baskett, SW SE SE Section 7-3s-10, Atoka County wildcat, was a machine.

In Tillman County Indian Territory Illuminating Oil Co.'s No. 1 Wright, SW SW SW Section 31-2s-18w, was building rig, and same company's No. 2 Goodwin, NE NE SE Section 1-3s-19w, was a location.

Fields & Nagle's No. 1 Alspaugh, SW SE NW Section 35-15-6, wildcat in Lincoln County, set surface casing at 70 ft. and had dug cellar and pits.

Helmerich & Payne, Inc.'s No. 1 Fireshaker, SE SE NE Section 11-24-3e, Noble County wildcat, was a location.

Continental Oil Co.'s No. 2 Walkingsky, C SE SE Section 18-25-2e, Kay County, was a location.

May Reach Agreement on Arkansas-Louisiana Rates

The Arkansas Utilities Commission recessed a formal hearing on gas rates in the state last week to confer with officials of the Arkansas-Louisiana Gas Co. and possibility of an agreement involving gas rate reduction is foreseen at an early date.

On February 23, 1940, the license granted by Jesse E. Hall to Cosco Manufacturing Company and relating to spiral casing guides was cancelled.

The exclusive manufacturer of the new Hall Spiral Casing Guide is the Houston Pipe Appliance Company. The improved Hall Spiral Guide not only incorporates a number of unique developments that substantially increase its operating efficiency and make it more rugged, but the price of the guide has been greatly reduced, as shown by the table below.

Guide Size	Previous Price	HPAC Price*
4¾"	$86.00	$48.50
5"	67.10	46.00
5¾"	70.40	48.00
6⅝"	74.80	49.00
7"	78.10	48.50
8⅝"	83.60	52.50
9"	86.90	54.00
9⅝"	92.40	55.50
10¾"	92.40	57.00
11¾"	96.80	58.00
13⅜"	118.80	61.50
16"	165.00	65.00

*Delivered to Customer, including freight.

In making this price reduction, the Houston Pipe Appliance Company wishes to protect all those supply houses and oil companies that now have spiral guides in their possession bought at a higher price. Therefore, we make this offer:

If you have any spiral guides on hand bought previous to the publication of this notice, the Houston Pipe Appliance Company will take in those guides at the full cost you paid, replacing them with Hall Spiral Casing Guides to an equal cost price value. In other words, if you have spiral casing guides on hand for which you paid $500, we will replace those guides with $500 worth of Improved Hall Guides—sizes to your selection—***at the new reduced prices!***

We are making this offer in a sincere effort to reduce the cost of spiral casing guides without incurring loss to either distributor or consumer, and we know of no fairer plan that we can make. We, of course, cannot be responsible for losses incurred through the purchase of other casing guides after receipt of this notice. Nor can we honor any claims made under the above plan after May 1, 1940.

If you wish to take advantage of this offer, please notify immediately the Los Angeles Office of the Houston Pipe Appliance Company, advising the number and sizes of spiral casing guides you have on hand, when they were purchased, and the price you paid for them. On receipt of this information we will notify our representative in your territory to make the exchanges outlined above ***without any cost to you whatsoever.***

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Eastern Field Report

Deep Tests Show Progress But Lack Definite Results

By STAFF CORRESPONDENT

PITTSBURGH, Pa., Apr. 15.—On Laurel Ridge in Fayette County, Pennsylvania, the test of the New Penn Development Co., William E. Snee, and E. G. Mueller on the Gregg L. Neel farm, Stewart Township, placed the Tully lime (Middle Devonian) at 6,840-49 ft., or subsea 4,274 ft. As it is a wildcat no correlation is possible but it closely coincides with the expected depth as worked from surface. It is now drilling at 6,914 ft. On the Confluence quadrangle, it is located 6.05 miles south of Lat. 40° and 4.95 miles east of Long. 79° 30'. It is 0.95 miles northeast of Maple Summit School.

In Beaver County, Pennsylvania, the test of John T. Galey and others on the James Tennis farm in South Beaver Township, passed through the Lockport dolomite at 6,290 ft. and is drilling at 6,340 ft. in shale. The top of the Lockport was at 6,015 ft. making the section 275 ft. thick.

This test is producing gas from the Oriskany sand. At 6,260 ft. the volume increased slightly and 2 days later the odor of the gas changed to very slightly sulfurous, characteristic of the Newburg "sand" of northern Ohio. Absolutely no water nor oil show was found in the Lockport. An 8-in. hole is being carried to the Clinton sand, the next producing horizon.

SOUTHEAST OHIO

In Licking County, Ohio, George Lacknett and others completed a gas well on the Ellen E. Perry farm in Newark Township in Clinton sand at 2,528 ft., and it gaged 1,662,000 cu. ft. a day. In this township, Allen Willey completed a gas well on the C. H. Spencer farm at 2,535 ft., Clinton sand, and it gages 800,000 cu. ft. a day.

In Section 6, Mary Ann Township, Licking County, Guy T. Shrider and others completed No. 4 J. H. Davis in Berea sand at 576 ft. It gaged 53,000 cu. ft. a day.

In Medina County E. R. Edson & Sons Co. No. 2 Account completed No. 5 Samuel Brent, Tract 19, Lot 2, Chatham Township, in Berea grit at 498 ft. It produced 50 bbl. the first day after a shot. This company also completed No. 4, same lease, at 539 ft. It produced only 2 bbl. the first day after shot. In this township Thornton Producing Corp. completed additional output wells on the Sanford and Watson lease, Tract 10, Lot 3, Chatham Township, as part of the water-flooding program. Nos. 0-10, 0-11, 0-15, 0-16, 0-17, and 0-23 were completed in Berea grit at 399 ft., 397 ft., 390 ft., 397 ft., 387 ft., and 406 ft., respectively. All will produce oil.

In Monroe County H. B. Walker & Co. completed No. 11 A. J. Morris, SW Section 29, Bethel Township, in Cow Run sand at 945 ft. It was dry.

In Perry County B. G. Davis and others completed No. 2 Mrs. C. A. Beacham, NE Section 17, Clayton Township, in Clinton sand at 3,250 ft. It is a gas well gaging 185,000 cu. ft. a day along with 1 bbl. of oil. It will be shot later. In the NE Section 18, same township, Pure Oil Co. completed No. 2 Martha J. Miller at 3,235 ft., Clinton sand. It gages 1,250,000 cu. ft. of gas a day along with 5 bbl. of oil.

SOUTHWEST PENNSYLVANIA

In Allegheny County, Pennsylvania, Harbison and others completed a 3-bbl. well on the Brown farm in Franklin Township at 1,900 ft., The Hundred Foot sand. In Robinson Township R. M. Duden and others completed No. 4 W. E. Ross at 2,300 ft. and it is good for 1 bbl. a day from the Fifth sand.

In Beaver County George Freshwater and J. C. Reed completed No. 5 Walter S. Laughlin, Green Township, at 850 ft., Berea sand, and it is good for 1½ bbl., pumping.

In Wayne Township, Armstrong County, the Penn Wayne Gas Co. drilled a test on the Seymore Paunch farm to 3,170 ft. but excepting for a show of gas in the Hundred Foot sand, it was dry.

In Plum Creek Township Equitable Gas Co. is drilling at 1,364 ft. in No. 1 Agnes Prugh; T. W. Phillips Gas & Oil Co., at 3,014 ft. in No. 1 James Cessna; Peoples Natural Gas Co. at 1,965 ft. in No. 1 Frank Smith. In Boggs Township Humphries, Stone, McCall Corp. is drilling at 2,420 ft. in No. 1 W. A. Dill.

In Kittanning Township Equitable Gas Co. is drilling at 250 ft. in No. 1 Alice Boyer; John Ray at 2,775 ft. in No. 1 Benjamin Miller; Edward Young rigging up No. 3 Hugh Blair. In Kiskiminitas Township Chestnut Ridge Oil & Gas Co. is down 1,617 ft. in No. 1 E. J. Shirey, which is being deepened. In Cowanshannock Township Peoples Natural Gas Co. is drilling at 3,415 ft. in No. 1 A. S. Rearick and fishing at 610 ft. in No. 2 Lee Bell.

Clarion-Indiana-Westmoreland

In Limestone Township, Clarion County, Owens Illinois Glass Co. completed a gasser on the Alb Deitrick farm at 2,463 ft. with 35,000 cu. ft. a day from the Speechley sand. In Porter Township T. W. Phillips Gas & Oil Co. is deepening No. 3 T. C. Blair at 2,430 ft. In Red Bank Township Apollo Gas Co. is down for a shot in the Susan Keck well.

In Indiana County T. W. Phillips Gas & Oil Co. has the following work under way: Brush Valley Township, No. 1 George Smolar drilling at 125 ft.; Center Township, No. 1 B. R. & P. Coal Co. fishing at 175 ft.; Washington Township, No. 2 M. M. Spence drilling at 3,500 ft., rigs for No. 1 Louisa Black and No. 1 E. B. Brandon; White Township, No. 1 H. W. Leech drilling at 2,065 ft., No. 1 J. J. McClain drilling at 2,085 ft.; Young Township, R. & P. Coal Co. spudding.

In Westmoreland County Apollo Gas Co. is drilling at 2,333 ft. in the D. M. Jones heirs test in Allegheny Township with 62,000 cu. ft. of gas a day showing from the Fifth sand.

Fayette-Greene-Washington

In German Township, Fayette County, the Greensboro Gas Co. completed the test on the Hicks and Holland lease at 2,640 ft. with the Fifth sand at 2,366-2,437 ft. and 150,000 cu. ft. of gas a day at 2,369-72 ft.

In this township Wahler Powers Oil & Gas Co. is drilling at 800 ft. in No. 1 Felix Valerio. In Menallen Township same company has started a test on the Shamrock Farms Co. In Nicholson Township Duquesne Gas Co. is drilling at 1,202 ft. in No. 1 Mary Durr, with the Big Injun sand topped at 1,157 ft., and a gas show at 1,177 ft. Greensboro Gas Co. is drilling at 1,220 ft. in No. 1 S. Kopsey and at 660 ft. in No. 1 Emmet Diamond.

In Greene County Equitable Gas Co. completed No. 2 Hugh Keenan in Greene Township at 1928 ft. with Big Injun sand at 1,800 ft. and 308,000 cu. ft. of gas a day at 1,922 ft. In Wayne Township Peoples Natural Gas Co. completed deepening No. 211 Margaret Henderson and it is good for 125,000 cu. ft. of gas a day, along with some oil.

In Richhill Township, Greene County, O. I. Dille and others have reached 2,384 ft. on the Madison Hughes farm. In Jackson Township A. V. Lewis and others completed the rig for the Smith & Pethtel test. In Monongahela Township Judson Bell and others are fishing at 510 ft. in No. 1 Samuel Black.

In Washington County Union Gasoline & Oil Corp. is drilling No. 829 C. T. Conn at 550 ft. In South Franklin Township, Burleigh Wright and others are drilling at 2,873 ft. in the Holmes Andrews test.

In West Deer Township, Allegheny County, Walters and others are drilling No. 2 John H. Flick at 1,300 ft. and Robert Marshall No. 4 William Rittman at 1,150 ft. In Middlesex Township, Butler County, Larkin and others are down 262 ft. in No. 2 G. Jeuther.

Deep Tests

On Chestnut Ridge in Fayette County, New Penn Development Co., William E. Snee and others are drilling at 6,901 ft. on the Piedmont Coal Co. land in North Union Township. This is 209 ft. below the top of the Onondaga chert which appears to have a greater thickness than in previous tests, possibly due to the angle of the formation. In Maryland these operators have reached 5,600 ft. on the Humberson farm on the Accident dome in Garrett County.

In South Union Township, Fayette County, Peoples Natural Gas Co. is rigging up on the Piedmont Coal Co. lease south of the National Highway.

WEST VIRGINIA

During the week two oil wells were completed in West Virginia. In Lincoln County E. J. Elkins test on the J. H. Pridemore and others in Carroll district in the Big lime at 1,475 ft. is producing 25 bbl. a day along with 150,000 cu. ft. of gas.

In Wetzel County Busch & Ferrell completed a 2-bbl. well on the H. L. Calvert farm in Proctor district in the Gordon sand at 3,095 ft.

Gas Wells

In Calhoun County Hope Natural Gas Co. deepened No. 1 Henry Grogg in Sheridan district to 2,047 ft., Injun sand, and it gages 425,000 cu. ft. a day.

In Braxton County Pittsburgh and West Virginia Gas Co. drilled No. 7733 W. G. Carper in Birch district to 2,072 ft. with the Big lime at 1,801-34 ft.; Big Injun 1,834-2,023 ft. and gas shows only at 1,763 ft and 1,967 ft. It will be abandoned.

In Cabell County Monickle Gas Co. completed the C. B. McCallister test in McComas district at 3,424 ft. with the Brown shale at 3,225-3,414 ft. and a volume of 52,000 cu. ft. of gas a day 36 hours after shot.

In Clay County Pittsburgh and West Virginia Gas Co. drilled a No. 7708 M. J. Ashley in Buffalo district to 1,807 ft. and it was dry. Big lime was at 1,596-1,807 ft. and Big Injun sand topped at 1,747 ft.

In Wayne County Southern West Virginia Gas Corp. completed deepening No. 11 B. J. Pritchard in Stonewall district at 3,014 ft. It gages 104,000 cu. ft. a day from 2,714-3,014 ft. after a shot.

Oriskany Gas Field

No Oriskany wells were completed in Kanawha County during the week. The final test of United Fuel Gas Co.'s No. 4863 Mary E. Carney in Poca district was 4,102,000 cu. ft. a day after shot, total depth 4,980 ft. In this district same company is drilling at 4,728 ft. in No. 4864 W. J. Glass and others and 185 ft. in No. 4878 J. P. Bailey.

Godfrey L. Cabot, Inc., made locations for No. 1 Ida P. Gibson and others and No. 4 John T. Bonham both in Poca district and is drilling No. 4 Putnam Co. at 3,601 ft., No. 3 J. T. Bonham at 415 ft. and No. 2 at 1,070 ft. The final gage of the United Carbon Co.'s No. 816 Louisa E. Long was 8,551,000 cu. ft. a day with a final depth of 5,091 ft. This company is drilling No. 824 Rosie Scott at 1,807 ft. and No. 825 W. C. Woodall at 2,280 ft.

In Poca district Columbian Carbon Co. is drilling No. 1 Joseph Hughart at 1,545 ft. and is running casing in No. 1 V. E. King at 1,987 ft. The West Virginia Gas Corp. is drilling No. 0-38 Elizabeth Thaxton at 670 ft. and No. 0-39 Leon Jones at 2,330 ft. William O. Ziebold is down 2,590 ft. in No. 1 Hattie E. Clark. In

Elk district Linden Drilling Co. is drilling No. 2 S. D. Robinson at 450 ft.

In Jackson County Joe Rubin and others is drilling the test on the C. E. Andricks farm in Grant district, a wildcat, at 1,370 ft.

New Work

Boone County: Cambridge Gas Co.'s No. 6 Charles H. Price heirs, Scott district, elevation 880 ft. South Penn Natural Gas Co.'s No. 59 Yawkey & Freeman, Washington district, elevation 848.46 ft.

Cabell County: Merritts Creek Gas Co.'s No. 1 Catherine and P. J. Riley, Barboursville district, elevation 556 ft.

Calhoun County: W. H. Bickel's No. 1 B. B. Belford, Center district, elevation 860 ft.

Clay County: Virginian Gasoline & Oil Corp.'s No. 1285 Brown, Goshorn & Swann, Henry district, elevation 865 ft. Thompson Gas Co.'s Nos. T-45 and T-46 Thompson Land & Coal Co., elevations 1,272.5 ft. and 1,240.2 ft., Pleasant district.

Gilmer County: South Penn Natural Gas Co.'s No. 3 A. L. Rymer, Troy district, to be deepened.

Lincoln County: E. J. Elkins' No. 1 Scott Richardson, Carroll district, elevation 998.2 ft. United Fuel Gas Co.'s No. 2260 Guyan Land Association, Laurel Hill district, to be deepened.

Pleasants County: Columbian Carbon Co.'s No. 1 Harry G. Hammet and others, Grant district, elevation 711.2 ft.

Tyler County: Tyler Wood Oil & Gas Co.'s No. 2 D. D. Davis, Centerville district, elevation 830 ft.

Forest City Basin

(Continued from Page 80)

31w, De Kalb County, south of Amity, where he will drill a well for American Oil & Gas Corp. of St. Joseph.

Black and others' No. 1 Earl Champ, SW SW Section 21-62-10w, Knox County, is a location 1 mile north of Knox City.

Morrow & Rodgers' No. 1 Seamster, Section 6-65-13w, Schuyler County, is dry and abandoned at 1,400 ft. in Arbuckle lime. T. E. Baldwin and associates had rig up and were due to spud their No. 2 Johnson, SW NE NE Section 21-65-15w, Schuyler County. Location is south of their abandoned No. 1-A Johnson, NW NE NE Section 21-65-15w. It had Viola lime at 1,280 ft., Arbuckle lime 1,494 ft., total depth 1,505 ft., plugged back, lost hole and was abandoned. A showing of oil was reported at 724-31 ft.

Ben Hall's No. 1 Masterson, C S½ SE Section 35-52-32w, Clay County, spudded. Harris & Holmes awarded Eastern Drilling Co. contract to drill No. 1 Newkirk, NE cor. Section 11-61-11w, Knox County.

In the Nebraska sector of the basin, Pawnee Royalty Co. was preparing to drill its third test in the Falls City district, Richardson County, at No. 1 Bucholz, C NW SW Section 17-1n-16e. Same operators were drilling below 2,285 ft. at their No. 1 Boice, C NE NE Section 18-1n-16e, Hinton lime discovery well, and were expecting Viola lime at around 2,900 to 3,000 ft. Rotary tools were being moved to Uhri Oil Co.'s No. 1 Ogle, NE NW SE Section 9-1n-14e, Richardson County. Ed Uhri, Humboldt, and Joseph Higgins, Lincoln, interested in No. 1 Ogle, have given M. J. Lewis, Wichita Falls, Tex., contractor, directions to start work. Uhri and associates were preparing to resume work at No. 1 Stauffer, SW SW NE Section 22-1n-13e, Richardson County test which has been shut down at 550 ft. for several weeks. Forest City Basin Syndicate's No. 1 Windle, SE NE SE Section 3-1n-15e (corrected location), has dug pits. Derrick was erected recently.

The only active wildcat in the Iowa sector is Oscar Gruber's No. 1 fee, C SW SE Section 8-67-40w, Fremont County. It was making hole below 1,300 ft. after long shutdown.

Indiana Fields

(Continued from Page 70)

Kelley and others completed No. 1 Hahn, SE SW NW Section 1-7s-12w. It pumped 20 bbl. a day from sands at 1,800-03 ft. and 1,875-81 ft.

Nash, Redwine and others' No. 1 Woods unit, NE SW SW Section 1-7s-12w, was coring Waltersburg sand below 1,805 ft.

S. M. Kernan was moving in tools for No. 1 J. C. Brown, C E½ NW SE Section 12-3s-9w. A. J. Walker was drilling at 975 ft., with nothing showing, in No. 1 Schmidt, NW NE NW Section 24-3s-9w. C. W. Sowell and others were drilling at 800 ft. in No. 1 Schoonover, 1,150 ft. from north and east lines of SW Section 13-3s-9w.

Spencer County

In Spencer County Kentucky Natural Gas Co.'s No. 1 Hall Community, C SE SW Section 29-7s-6w, was completed as a gas well, producing 1,152,000 cu. ft. of gas and a spray of oil from sand at 916½ ft., total depth. New work in the county included L. M. Steele and others' No. 1 Frank, C W½ NW SE Section 30-7s-6w, rigging up machine; Sturbine and others' No. 3 Boyd, SE NE NE Section 31-7s-6w, rigging up machine.

Damron Brothers' No. 2 Kopp, SE cor. NW NE NE Section 19-7s-6w, was showing 1,000,000 cu. ft. of gas in the top of the sand at 871 ft. Casing was set and the crew was waiting for cement to set. Kentucky Natural Gas Co. was drilling at 300 ft. in No. 2 Scamahorn, C SE NW Section 29-7s-6w. Sturbois and others pumped 60 bbl. a day from sand at 918-23 ft., but was still in the testing stage.

Damron Brothers' No. 1 Frank, SE NE SE Section 35-7s-7w, had a showing of oil at 934 ft., but a hole full of water at 940 ft., total depth, and was abandoned.

Ohio Oil Co.'s No. 1 Holtzman, NE SE SE Section 28-4s-4w, had Devonian lime top at 2,171 ft., a showing of oil at 2,337-42 ft., and was drilling at 2,545 ft.

In Perry County Persise & Wyman's No. 1 Greiner, SW SE SE Section 13-4s-2w, was dry and abandoned at 780 ft. It had been deepened from 320 ft.

In Vanderburg County Vanderburgh Oil Corp. was drilling at 1,385 ft. in No. 11 Hornby, SE NW SW Section 33-5s-10w.

In Warrick County S. R. Travis and others were drilling at 1,550 ft. in No. 1 Moyer, NW cor. SW NW Section 13-5s-9w.

In Pike County George W. Miller was drilling at an estimated 4,000 ft. in No. 1 Nixon, SE SW NE Section 14-3s-8w.

Posey County

In Posey County Roberts Brothers completed No. 4 Keck, SW NE NW Section 34-3s-14w, in Aux Vases sand at 2,789-2,809 ft., which was shot with 20 qt. It made a 60-bbl. pumper. J. N. Roberts' No. 1 Keck, SW SE NW Section 34-3s-14w, was drilling at 2,145 ft.

In Knox County Newton Pipe Line Co. was moving in boiler preparatory to starting to deepen No. 1 Like, in Donation 171-2n-9w, from 1,600 ft. to Salem lime. Sun Oil Co.'s No. 1 Utt, Donation 182-4n-9w, was below 1,800 ft. with nothing showing. Ste. Genevieve lime was topped at 1,800 ft. Hart & Williams' No. 1 Montgomery, C NE SW Section 28-5n-7w, was shut down at 2,261 ft. awaiting owners' orders. M. I. T. Syndicate was shut down for orders at 2,650 ft. in No. 1 McHenry, in Donation 214-5n-9w.

In Daviess County B. Ruble was drilling at 120 ft. in No. 1-12 Walker, NE cor. SW SE Section 4-2n-5w.

In Greene County Commonwealth Oil Co. was drilling at 423 ft. in No. 1 Tucker, NW cor. NE SE NE Section 16-6n-6w. Shickard & Lyon's No. 1 Kiser, NW NW NW Section 4-7n-5w, had Ste. Genevieve lime top at 343 ft., a hole full of water at 698-748 ft., and was fishing at 945 ft. with 850 ft. of water in the hole.

In Decatur County Hoosier Public Utilities Co.'s No. 1-209 Reamy, C SE NW Section 1-9n-9e, was drilling below 202 ft.

In Putnam County Williams' No. 1 Cooper, SW cor. NE Section 10-3n-4w, was spudded.

In Hancock County D. D. Chaffee was drilling below 100 ft. in No. 1 Brock, SW cor. NE SW Section 6-16n-6e.

In Sullivan County Forest Oil Corp.'s No. 1 Riggs, NW NE SW Section 33-9n-9w, was drilling below 1,050 ft.

In Owen County Irban Oil Co. was drilling below 900 ft. in No. 1 Everhart, C S½ NE SE Section 21-9n-5w.

In Randolph County John Seip was drilling below 802 ft. in No. 1 Johnson, SW cor. NW NE NW Section 9-19-13e.

In Madison County Fountain Petroleum Co. was spudding at 85 ft. in No. 1 American United Life, SW NW SE Section 8-21-8e.

In Jay County Davis' No. 1 Perry, NW cor. NE Section 17-24n-12e, was drilling below 300 ft.

In Dubois County Beyers, Borden and others' No. 1 Schultz, C N½ SE NE Section 5-2s-3w, were drilling at 226 ft.

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Michigan Field Report

By
OTTO C. PRESSPRICH

Week's Results Are Poorest in 2 Years; New Work Declines

SAGINAW, Mich., Apr. 15.—Fifteen completions—seven dry holes, and eight oil wells with a combined initial production of 988 bbl.—summarized last week's activities, the most unproductive in more than 2 years in Michigan oil fields. Projected new development also declined as the state Conservation Department issued only 14 drilling permits.

Chief of the new tests planned is C. M. Carothers' No. 1 Kleinhans, in Section 2 of Porter Township, Midland County, 3 miles to the north of the Porter field's east rim. Another test scheduled for Porter is Pure Oil Co.'s No. 30 Narmore in Section 15. Prospects of a resumption of activity on the sensational Buckeye field of a few years ago were seen as C. W. Teater took out a permit to drill No. 1 Stahl in Section 24, at the north edge of the lower Buckeye area in Gladwin County. The Wise field of Isabella County is slated for two more developments, Cities Service Oil Co.'s No. 2 Tubbs in Section 17 and No. 1 Ernest in Section 28. The Wise field is the most active in the state at the present time. Pure Oil Co. took out permits for two more wells in Clare's Redding field, one in Section 28, the other in Section 34, and Arco Crude Oil Corp. plans to drill a wildcat in Fayette Township of Hillsdale County. Locations for the other new wells were made in Heath and Salen townships, Allegan County, Coloma of Berrien County, Algoma of Kent County, Summerfield of Monroe County and Tallmadge of Ottawa County.

Best of the new wells was Cities Service Co.'s No. 1 Parsell in Section 17 in the Wise field. The flow was partly choked and production the first 24 hours was 326 bbl. The hole bottomed at 3,727 ft. Production was gaged after an acid treatment. Pure Oil Co.'s No. C-2 Bicknell in Section 27 in the Redding field in Clare County had an after-acid initial of 157 bbl. Two Dundee Township wells in Monroe County, three in Kent and a small producer in Tallmadge completed the list of new wells. A. V. Oil & Gas Co.'s No. 1 Beland in Section 30 of Dundee, had after-acid initial of 192 bbl., the other Dundee producer, Vanco Oil & Gas Co.'s No. 2 Montry in Section 30, was good for 35 bbl.

Mesel & Spielberg's No. 1 Lipski in Section 14 of Tallmadge also rated 35 bbl. and in Kent County, the Central Land Co.'s No. 1 in Section 3 of Wyoming was producing 100 bbl. for Rex Oil & Gas Co. Smith Petroleum Co. reported 113 bbl. natural initial from No. 1 Dayton in Section 28 of Walker and a Western Oil & Gas Co.'s completion in Section 30 was clocked at 30 bbl. a day.

Wildcat and extension tests accounted for most of the dry holes, including DeVries' No. 1 Atwater in Section 9 of Ganges and Twin Drilling Co.'s No. 1 Minar in Section 15 of Gunplain, both in Allegan County. Smith Petroleum's No. 1 Hall in Irving Township of Barry County was another as was the Higelmire's No. 1 Schiefla in Barry's Thornapple Township. Also dry was a Section 27 test in Walker and Lewis Petersen's hole in Van Buren County's Porter Township.

Twenty thousand acres of state-owned lands will be made available for oil and gas exploration when the state Conservation Commission lands division conducts a lease auction May 3. Offered will be rights on 2,200 acres in Arenac County, 1,100 in Crawford, 1,700 in Clare, 6,000 in Gladwin, 380 in Kalkaska, 400 in Lake, 200 in Mecosta, 1,760 in Ogemaw, 5,600 in Osceola, 610 in Roscommon.

Following is the completions summary:

Allegan County

Ganges Township (2n-16w)—Q. DeVries, trustee's No. 1 H. M. Atwater, SE NE NW Section 9, was dry and abandoned at 1,308 ft.

Gunplain Township (1n-11w)—Twin Drilling Co.'s No. 1 Minar, SE SE SW Section 15, dry and abandoned at 1,508 ft.

Barry County

Irving Township (4n-9w)—With the test dry at a depth of 2,157 ft., Smith Petroleum Co. and others abandoned No. 1 R. P. Hall, NW SW SE Section 5.

Thornapple Township (4n-10w)—Dr. S. J. Higelmire abandoned No. 1 Helen Schiefla, NW NW NW Section 6, at a depth of 2,042 ft.

Clare County

Redding Township (19n-6w)—Pure Oil Co.'s No. C-2 J. S. Bicknell, C S½ NE SE Section 27, was rated at 157 bbl. a day, after being acidized. Total depth is 3,892½ ft.

Cass County

Mason Township (8s-14w)—R. B. Tamblyn Development Co.'s No. 1 Steve Kujawski, SW SW NE Section 21, was dry and abandoned at 1,050 ft.

Isabella County

Wise Township (16n-3w)—Best of the week's few producer completions was Cities Service Oil Co.'s No. 1 Parsell, NW NW NE Section 17, completed at a depth of 3,727 ft. and having after-acid daily potential of 326 bbl.

Kent County

Walker Township (7n-12w)—Louis Rose's No. 1 Harold Edison, SE NE NW Section 27, was abandoned as a dry hole at 2,030 ft. Smith Petroleum Co. and others' No. 1 Ruben Dayton, SE SE NE Section 28, produced 113 bbl. a day, naturally, from 1,850 ft., and Western Oil & Gas Co.'s No. 1 Scott, Dole & Scott, NE SW NE Section 30, completed at 1,923 ft., was producing 30 bbl. a day after being acid treated.

Wyoming Township (6n-12w)—Rex Oil & Gas Co.'s No. 1 Central Land Co. and others, SE NW NE Section 3, produced 100 bbl. after acid treatment from 1,776 ft.

Monroe County

Dundee Township (6s-6e)—A. V. Oil & Gas Co.'s No. 1 Elmer Beland, NW NE NE Section 30, completed at 2,128 ft., had initial 24-hour output of 192 bbl., after shot, while Vanco Oil & Gas Co. completed No. 2 Henry Montry, SW SE SW Section 30, at 2,184 ft., for 35 bbl. a day.

Ottawa County

Tallmadge Township (7n-13w)—Mesel & Spielberg's No. 1 Anthony Lipski, SW NE SW Section 14, produced 35 bbl. a day after acid treatment at 1,859 ft.

Van Buren County

Porter Township (4s-13w)—Lewis P. Petersen's No. 2 Petersen Paint farm, SE SW SE Section 14, was dry and abandoned at 1,814 ft.

Canadian Fields

By VICTOR LAURISTON

CHATHAM, Ont., Apr. 13.—In Section 6-19-2w5, west central Turner Valley, East Crest Oil Co.'s No. 5, LSD 9, finished at 7,762 ft. after getting the Madison at 7,316 ft., yielded 150 bbl. a day before it was acidized. Packer has been run to separate the two porous zones and acid treatment will be given in both zones. On completion of the well, work will be started on East Crest's No. 6, LSD 16, same section.

In Section 13-19-3w5, Arrow Royalties' No. 1, LSD 16, finished in the black lime at 8,102 ft., has been given a further acid treatment of 5,000 gal.

In Section 5-19-2w5, Vanpeg Royalties' No. 1, LSD 9, finished at 7,072 ft., 657 ft. in the Madison, has been acidized in both porous zones. Early tests indicated a gas shortage, but the well later started to flow freely, and looks like a good producer. It is being given official test for quota.

Southwest Field

In Section 8-18-2w5, Northwest-Hudson's Bay Co.'s No. 3, LSD 15, is below 7,321 ft. and nearing the Kootenay formation after getting the Home sand at 7,167 ft. In Section 17-18-2w5, Royalite Oil Co.'s No. 50, LSD 7, is in the Blairmore formation below 6,807 ft. In Section 20-18-2w5, York Oils' No. 3, LSD 3, is below 7,149 ft. and getting close to the Kootenay, after getting the Home sand at 7,030 ft. In Section 32-18-2w5, Royal Canadian Oil Co.'s No. 4, LSD 12, is below 7,189 ft.

West Central Field

In Section 18-19-2w5, Calmont-Northwest's No. 1, LSD 3, is below 7,144 ft. and getting close to the Fernie shales. Davis Petroleums' No. 5, LSD 10, is below 6,912 ft. and getting close to the Fernies.

North Turner Valley

In Section 15-20-3w5, North Turner Valley, Anglo-Phillips' No. 1, LSD 14, is in the Dalhousie sand below 8,223 ft.

In Section 27-20-3w5, Foothills Oil & Gas Co.'s No. 6, LSD 5, is in the Blairmore formation below 5,832 ft.

In Section 34-20-3w5, Alberta Oil Incomes' No. 1, LSD 4, is fishing at 6,011 ft. No. 2, LSD 4, Section 4-21-3w5, is in the Blairmore below 5,086 ft. after getting the grit beds marker high at 4,820 ft., indicating a much shallower test than had been anticipated. This is the most northerly active drilling in the field, being about ¾ mile northwest of Home Oil Co.'s No. 2 producer.

Waite Valley Test Abandoned

In the Waite Valley area, about 3 miles west of Home Oil Co.'s No. 2, National Petroleum Corp.'s No. 3, LSD 4, Section 25-20-4w5, has been definitely abandoned at 7,626 ft. A fault back from the Fernie shale to the Belly River formation was encountered below 7,420 ft. which was confirmed by deeper drilling. Previous tests in other parts of the Waite Valley area encountered marked faulting and failed to get production. National Petroleum Corp. will hold its acreage, but is not planning any further drilling.

Home Makes New Locations

Home Oil Co. of Vancouver, British Columbia, has made three new locations for tests in North Turner Valley, in line with its present three producers. The former Home's No. 1, LSD 8, Section 33-20-3w5, will henceforth be listed as Home's No. 1-A, and a new No. 1 started in the same LSD. The earlier well was abandoned around 7,600 ft. when it developed a marked deviation from vertical. Home's No. 5 will be drilled in LSD 16, Section 28-20-3w5, and Home's No. 6 in LSD 8, same section, in which Home's No. 4 producer was recently completed in LSD 9. Rotary equipment will be used and work will likely be started within a few weeks.

In the southwest end of the field, Northwest-Hudson's Bay Co.'s No. 4 has

(Continued on Page 105)

Summary of Operations, All Fields for March

SUMMARY OF ALL FIELDS

Wells Completed

	Comp.	Prod.	Dry	Gas
Eastern fields	439	1,572	18	53
Lima	3	0	2	1
Central Ohio	66	221	23	21
Michigan	100	7,814	49	2
Indiana	31	1,150	15	2
Eastern Kentucky	9	55	0	7
Western Kentucky	20	280	13	0
Illinois	248	151,910	33	4
Missouri	1	0	1	0
Nebraska	1	0	1	0
Kansas	125	37,125	22	3
Oklahoma	134	12,067	54	11
North Cent. Texas	257	79,702	99	4
West Texas	169	146,637	10	2
Texas Panhandle	33	8,369	1	6
East Texas	23	918	0	0
East Cent. Texas	19	1,919	6	5
East Texas border	6	375	1	0
Southwest Texas	193	12,241	71	7
Gulf Coast Texas	92	25,052	18	1
Gulf Coast La.	125	28,854	21	4
Mississippi	12	5,385	4	0
Arkansas	19	3,225	7	0
North Louisiana	56	5,081	7	5
Montana	10	469	5	0
Wyoming	13	16,235	2	0
Colorado	2	0	2	0
New Mexico	55	18,476	6	5
Total March	2,261	565,332	491	143
Total Feb.	2,147	694,417	379	147
Difference	114	129,085	112	4

Rigs and Wells Drilling

	Rigs	Dig.	Ttl.
Eastern fields	84	529	613
Lima	2	5	7
Central Ohio	43	129	172
Michigan	34	150	184
Indiana	7	65	72
Eastern Kentucky	7	25	32
Western Kentucky	2	61	63
Illinois	66	392	458
Missouri	0	18	18
Iowa	0	3	3
Nebraska	0	15	15
Kansas	46	220	266
Oklahoma	39	317	356
North Central Texas	210	294	504
West Texas	50	275	325
Texas Panhandle	34	92	126
East Texas	11	21	32
East Central Texas	5	36	41
East Texas border	0	14	14
Southwest Texas	35	174	209
Gulf Coast Texas	23	122	145
Gulf Coast Louisiana	23	109	132
Mississippi	3	35	38
Arkansas	5	40	45
North Louisiana	5	53	58
Alabama	0	4	4
Florida	0	6	6
Georgia	1	3	4
Arizona	0	7	7
Montana	4	43	47
Wyoming	8	61	69
Colorado	1	25	26
New Mexico	24	126	150
Utah	1	6	7
Total March	773	3,475	4,248
Total Feb.	877	3,334	4,211
Difference	104	141	37

OKLAHOMA

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Atoka	0	0	0	0	0	1
Beckham	0	0	0	0	0	2
Caddo	5	906	2	0	1	20
Carter	5	134	1	0	0	13
Choctaw	0	0	0	0	0	2
Coal	0	0	0	0	0	2
Comanche	1	5	0	0	0	4
Cotton	0	0	0	0	0	1
Creek	11	242	5	2	0	23
Dewey	0	0	0	0	0	1
Garfield	2	0	2	0	0	3
Garvin	1	0	1	0	0	0
Grady	2	272	0	0	0	6
Grant	0	0	0	0	0	2
Hughes	2	0	2	0	2	8
Jackson	11	256	6	0	1	18
Jefferson	0	0	0	0	0	1
Kay	1	98	0	0	1	5
Kingfisher	0	0	0	0	0	2
Kiowa	1	0	1	0	0	5
Latimer	1	0	1	0	0	0
LeFlore	1	0	1	0	0	0
Lincoln	7	392	2	0	1	8
Logan	0	0	0	0	0	2
Marshall	0	0	0	0	0	3
McClain	5	2,974	0	0	1	3
McIntosh	1	0	1	0	0	1
Noble	0	0	0	0	0	3
Okfuskee	9	1,064	2	1	2	11
Oklahoma	0	0	0	0	3	10
Okmulgee	5	29	2	1	1	7
Osage	3	5	2	0	1	13
Pawnee	5	75	1	2	1	9
Payne	2	200	1	0	0	5
Pontotoc	7	1,070	4	1	3	10
Pottawatomie	19	2,128	8	0	12	18
Seminole	13	823	5	0	5	20
Stephens	5	23	2	0	0	8
Tillman	1	1,366	0	0	0	2
Tulsa	2	0	1	1	1	10
Wagoner	5	5	1	2	0	18
Washington	1	0	0	1	0	0
Washita	0	0	0	0	0	1
Miscellaneous	0	0	0	0	3	36
Ttl. Mar.	134	12,067	54	11	39	317
Ttl. Feb.	130	19,082	46	8	51	275
Difference	4	7,015	8	3	12	42

KANSAS

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Barber	1	0	1	0	1	3
Barton	14	4,005	1	0	4	33
Butler	6	147	2	0	2	9
Cowley	8	4,507	3	0	3	11
Cloud	0	0	0	0	1	0
Ellis	20	10,858	0	0	8	21
Ellsworth	11	3,198	1	0	4	10
Graham	0	0	0	0	1	0
Greenwood	3	85	0	0	0	15
Gove	1	0	1	0	0	0
Jefferson	0	0	0	0	0	1
Johnson	2	5	1	0	0	1
Kingman	0	0	0	0	1	1
Leavenworth	0	0	0	0	0	1
Lyon	1	0	1	0	0	0
Marion	2	275	1	0	1	6
Marshall	0	0	0	0	0	1
McPherson	8	2,302	0	0	3	17
Montgomery	1	22	0	0	0	0
Phillips	0	0	0	0	0	1
Pratt	1	0	0	1	0	2
Reno	1	0	1	0	1	0
Rice	16	3,096	4	0	2	24
Rooks	2	267	0	0	4	4
Russell	15	4,795	4	0	6	37
Sedgwick	0	0	0	0	1	3
Stafford	9	3,268	1	0	3	15
Stevens	2	0	0	2	0	1
Sumner	1	295	0	0	0	0
Trego	0	0	0	0	0	2
Woodson	0	0	0	0	0	1
Ttl. Mar.	125	37,125	22	3	46	220
Ttl. Feb.	104	24,658	14	4	32	204
Difference	21	12,467	8	1	14	16

SOUTHWEST TEXAS

Field—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Agua Dulce	3	0	2	1	0	2
Adami	8	334	0	0	1	6
Adams	1	0	1	0	0	0
Benavides	3	0	3	0	0	0
Ben Bolt	9	2,198	0	0	1	3
Byersville	2	0	2	0	0	0
Bruni	1	6	0	0	1	0
Chiltipin	1	0	1	0	0	0
Carolina-Texas	0	0	0	0	0	1
Clara Driscoll	3	206	0	0	0	2
Carroll	0	0	0	0	0	1
Cedro Hill	7	166	0	0	0	2
Colorado	5	1,031	0	0	0	2
Comitas	1	15	0	0	0	1
Cedar Creek	0	0	0	0	0	1
Cologne	1	0	0	1	0	0
Dale	3	158	1	0	0	1
Darst Creek	1	252	0	0	0	1
Driscoll	2	532	0	0	0	1
E. Telferner	1	0	1	0	0	0
E. White Pt.	10	1,202	0	1	1	6
Escobas	2	84	0	0	0	2
Eckert	0	0	0	0	0	1
E. Premont	0	0	0	0	0	1
Elm Creek	4	12	1	0	1	0
Fagan	0	0	0	0	0	2
Flour Bluff	0	0	0	0	1	0
Govt. Wells	1	0	1	0	0	1
Heyser	2	302	0	0	1	1
Hoffman	5	230	1	1	2	1
Kelsey	5	411	0	0	0	2
La Rosa	3	224	1	0	0	2
Long Horn	1	113	0	0	0	1
Lulling	0	0	0	0	0	1
Minnie Bock	1	0	1	0	0	4
McCampbell	13	1,099	0	1	1	13
McFaddin	0	0	0	0	0	1
Munson	1	0	1	0	0	0
Mirando Valley	6	341	1	0	1	4
Midway	1	87	0	0	0	1
Muralla	1	67	0	0	1	1
N. Luby	1	76	0	0	0	0
Peters	3	48	2	0	1	1
Piedra De Lumbre	0	0	0	0	1	0
Placedo	1	113	0	0	0	0
Pettus	0	0	0	0	0	1
Premont	0	0	0	0	0	2
Pearsall	0	0	0	0	0	1
Rancho Solo	2	60	1	0	0	2
Refugio	0	0	0	0	1	1
Reynolds	1	0	1	0	0	1
Ricaby	1	18	0	0	0	0
Rockdale	5	26	2	0	0	0
Richard King	0	0	0	0	0	1
Riddle	0	0	0	0	1	1
Rincon	2	405	0	0	0	5
Salt Flats	0	0	0	0	1	1
Samfordyce	0	0	0	0	0	1
Saxet	1	28	0	0	0	0
S. Clara Driscoll	1	143	0	0	0	3
Seven Sisters	2	40	0	1	0	0
Sejita	1	16	0	0	0	0
Stratton	0	0	0	0	0	2
Sun	4	608	0	0	0	5
S. Calliham	1	0	1	0	0	2
Sweden	1	22	0	0	0	0
Tarancahuas	5	659	1	0	0	1
Victoria	2	327	0	0	1	3
Volpe	4	209	1	0	0	1
Wade City	1	347	0	0	1	2
W. Tuleta	0	0	0	0	0	1
W. Cole	1	26	0	0	0	0
Whitsett	1	0	0	1	0	0
White Creek	1	0	1	0	1	0
Miscellaneous	43	0	43	0	13	67
Ttl. Mar.	193	12,241	71	7	35	174
Ttl. Feb.	183	14,003	62	4	46	199
Difference	10	1,762	9	3	11	25

E. CENTRAL AND E. TEXAS

County—	Comp.	Prod.	Dry	Gas	Rgs.	Ttl.
Anderson	5	92	0	3	0	7
Angelina	1	10	0	0	0	0
Bowie	0	0	0	0	0	1
Bowie	0	0	0	0	0	1
Camp	0	0	0	0	0	1
Cherokee	0	0	0	0	0	1
Collins	0	0	0	0	0	1
Falls	0	0	0	0	0	1
Fannin	0	0	0	0	0	1
Franklin	2	752	0	0	2	2
Gregg	18	728	0	0	4	8
Henderson	1	0	1	0	0	1
Hill	1	0	1	0	0	0
Hopkins	0	0	0	0	0	1
Houston	3	62	1	1	1	6
Kaufman	0	0	0	0	1	2
Leon	0	0	0	0	0	1
Limestone	2	0	1	1	0	2
McLennan	0	0	0	0	0	1
Navarro	1	503	0	0	0	4
Red River	1	0	1	0	0	0
Rusk	4	170	0	0	4	5
Robertson	0	0	0	0	0	1
Smith	0	0	0	0	2	5
Titus	1	500	0	0	0	1
Trinity	1	0	1	0	0	1
Upshur	1	20	0	0	1	2
Van Zandt	0	0	0	0	1	1
Ttl. Mar.	42	2,837	6	5	16	57
Ttl. Feb.	36	2,301	2	6	18	61
Difference	6	536	4	1	2	4

CENTRAL AND NORTH TEXAS

County—	Comp.	Prod.	Dry	Gas	Rgs.	Ttl.
Archer	55	36,818	11	0	38	46
Brown	6	53	2	0	1	8
Baylor	4	1,879	1	0	2	3
Callahan	10	9	8	1	14	5
Clay	28	1,585	18	0	16	19
Coleman	2	47	1	0	0	12
Comanche	8	154	4	0	3	4
Cooke	20	5,086	10	0	24	14
Coryell	1	0	1	0	0	1
Denton	1	26	0	0	0	2
Erath	0	0	0	0	1	2
Eastland	1	0	1	0	3	5
Fannin	0	0	0	0	1	0
Fisher	1	0	1	0	0	0
Foard	0	0	0	0	0	3
Grayson	0	0	0	0	0	4
Hamilton	0	0	0	0	0	3
Hardeman	1	0	1	0	0	1
Haskell	0	0	0	0	0	1
Hood	0	0	0	0	0	1
Jack	5	250	4	0	7	14
Johnson	0	0	0	0	0	1
Jones	16	1,575	7	1	6	21
Montague	11	8,566	3	0	13	13
Palo Pinto	1	0	1	0	1	4
Parker	0	0	0	0	0	1
Runnels	0	0	0	0	0	3
Shackelford	11	1,813	3	0	9	12
Stephens	1	132	0	0	3	6
Tarrant	0	0	0	0	0	2
Taylor	1	310	0	0	0	5
Throckmorton	2	68	1	0	0	3
Wichita	35	16,145	8	0	48	44
Wilbarger	12	2,297	7	0	5	12
Wise	2	0	2	0	0	1
Young	22	2,889	4	2	15	18
Ttl. Mar.	257	79,702	99	4	210	294
Ttl. Feb.	214	60,360	70	4	229	296
Difference	43	19,342	29	0	19	2

TEXAS PANHANDLE

County—	Comp.	Prod.	Dry	Gas	Rgs.	Ttl.
Carson	8	2,431	0	0	9	10
Cottle	0	0	0	0	0	1
Deaf Smith	0	0	0	0	0	1
Dickens	0	0	0	0	0	1
Gray	6	2,015	0	0	8	33
Hutchinson	15	3,923	0	3	14	23
Lipscomb	1	0	1	0	0	0
Moore	3	0	0	3	1	7
Motley	0	0	0	0	0	1
Ochiltree	0	0	0	0	0	1
Potter	0	0	0	0	0	2
Sherman	0	0	0	0	0	1
Swisher	0	0	0	0	0	1
Wheeler	0	0	0	0	2	10
Ttl. Mar.	33	8,369	1	6	34	92
Ttl. Feb.	49	13,972	4	4	36	103
Difference	16	5,603	3	2	2	11

WEST TEXAS

County—	Comp.	Prod.	Dry	Gas	Rgs.	Ttl.
Andrews	4	2,269	1	0	0	4
Concho	0	0	0	0	0	3
Crane	9	13,219	1	0	4	14
Crockett	1	812	0	0	2	4
Ector	49	45,740	2	0	15	64
El Paso	0	0	0	0	0	1
Gaines	12	8,674	1	0	2	10
Hockley	2	1,972	0	0	7	13
Howard	2	383	0	0	1	4
Hudspeth	0	0	0	0	0	2
Irion	1	0	1	0	0	0
Loving	1	74	0	0	0	4
Lynn	1	0	1	0	0	1
McCulloch	0	0	0	0	0	1
Mitchell	0	0	0	0	0	3
Nolan	0	0	0	0	0	1
Pecos	7	754	0	0	1	17
Presidio	0	0	0	0	0	1
Reeves	0	0	0	0	1	1
Schleicher	0	0	0	0	0	3
Scurry	4	227	1	0	4	13
Stonewall	0	0	0	0	0	2
Terrell	0	0	0	0	0	2
Terry	0	0	0	0	0	2
Tom Green	1	0	1	0	0	2
Upton	8	5,492	0	0	1	7
Ward	11	9,647	0	0	3	26
Winkler	7	4,310	0	2	2	6
Yoakum	49	53,064	1	0	7	64
Ttl. Mar.	169	146,637	10	2	50	275
Ttl. Feb.	150	131,595	10	0	67	285
Difference	19	15,042	0	2	17	10

EAST TEXAS BORDER

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Bowie	0	0	0	0	0	1
Harrison	0	0	0	0	0	1
Marion—Rodessa	0	0	0	0	0	2
Marion—other	6	375	1	0	0	8
Shelby	0	0	0	0	0	2
Ttl. Mar.	6	375	1	0	0	14
Ttl. Feb.	5	20	3	0	1	10
Difference	1	355	2	0	1	4

TEXAS GULF COAST

Field—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Anahuac	3	1,269	0	0	0	3
Anchor	1	496	0	0	0	7
Batson	1	18	0	0	1	0
Bammel	1	0	0	1	1	0
Bay City	0	0	0	0	1	1
Barbers Hill	0	0	0	0	0	1
Buckeye	0	0	0	0	0	1
Capien	2	188	0	1	0	2
Cedar Point	1	164	0	0	0	1
Clear Lake	3	322	0	0	1	1
Danbury	1	0	1	0	0	2
Dickinson	0	0	0	0	1	2
Eureka	1	272	0	0	0	0
Esperson	1	103	0	0	1	1
Fannett	1	846	0	0	0	1
Fairbanks	6	519	1	0	1	2
Friendswood	1	292	0	0	0	2
Greens Lake	0	0	0	0	0	1
Hardin	6	1,027	1	0	1	3
Hastings	2	774	0	0	0	2
Hilje	1	22	0	0	0	0
Hull	1	75	0	0	0	0
Humble	4	464	0	0	0	2
League City	0	0	0	0	0	1
Lockridge	1	257	0	0	0	0
La Belle	0	0	0	0	0	1
Lovells Lake	5	466	1	1	1	2
Manvel	1	533	0	0	0	1
Martha	1	78	0	0	0	1
Mauritz	2	60	1	0	0	1
Markham	1	355	0	0	1	0
N. Cheek	0	0	0	0	0	2
Old Ocean	2	909	0	0	0	7
Orange	1	162	0	0	1	1
Orchard	0	0	0	0	0	1
Pickett Ridge	2	130	1	0	1	0
Port Neches	1	266	0	0	0	1
Rosenberg	1	0	1	0	0	1
Saratoga	1	13	0	0	0	0
Seabreeze	1	0	0	1	0	1
Segno	4	1,981	0	0	1	2
Silsbee	1	483	0	0	1	1
Spurger	2	851	0	0	1	1
S. China	4	504	1	0	1	0
S. Cotton Lake	1	103	0	0	0	1
Thompson	10	2,651	1	0	1	4
Tomball	1	24	0	0	0	1
Turtle Bay	0	0	0	0	0	1
Van Vleck	1	336	0	0	1	0
W. Beaumont	1	122	0	0	0	1
W. Ranch	20	9,699	0	0	2	10
W. Columbia	5	1,445	0	0	0	3
Withers	7	575	1	0	0	5
Miscellaneous	11	0	11	0	3	26
Ttl. Mar.	125	28,854	21	4	23	112
Ttl. Feb.	91	19,550	21	1	24	109
Difference	34	9,304	0	3	1	3

COASTAL LOUISIANA

Field—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Abbeville	1	267	0	0	0	1
Anse La Butte	3	264	0	0	0	1
Bancroft	2	482	0	0	1	1
Barataria	0	0	0	0	0	3
Bateman Lake	1	0	0	1	0	2
Bayou Blue	1	0	1	0	2	0
Bay St. Elaine	1	0	1	0	0	0
Bayou Pigeon	1	408	0	0	0	0
Black Bayou	1	0	1	0	0	0
Caillou Island	0	0	0	0	0	1
Charenton	4	353	0	0	0	3
Choctaw	0	0	0	0	0	1
Chalkley	4	1,253	2	0	0	3
Chacahouia	1	0	1	0	0	1
Cheneyville	2	590	0	0	1	1

Cameron Meadows	0	0	0	0	0	1
Darrow	2	324	1	0	0	0
Delta Farms	1	242	0	0	0	0
Dog Lake	1	0	1	0	0	1
E. Baton Rouge	2	265	0	0	1	2
Eola	7	3,823	1	0	0	7
Edgerly	0	0	0	0	0	1
Fausse Point	0	0	0	0	0	2
Gibson	0	0	0	0	0	1
Grand Bay	2	1,842	0	0	0	3
Golden Meadow	12	3,881	1	0	1	0
Gillis	0	0	0	0	1	2
Garden Island	1	496	0	0	0	2
Grand Lake	4	1,073	0	0	0	2
Hackberry	3	1,259	0	0	1	3
Happytown	0	0	0	0	0	1
Horseshoe Bayou	0	0	0	0	0	1
Jeanerette	1	324	0	0	1	0
Jennings	4	290	1	0	0	4
Jefferson Island	1	130	0	0	1	1
La Place	0	0	0	0	0	1
La Fourche Crossing	0	0	0	0	0	2
Lafitte	1	803	0	0	0	3
Lake Hermitage	1	0	1	0	0	0
Lake Pelto	0	0	0	0	0	1
Leesville	0	0	0	0	1	0
Neale	1	177	0	0	0	0
N. Crowley	2	1,526	0	0	0	*1
New Iberia	3	213	0	0	1	5
Paradis	1	1,028	0	0	2	1
Perkins	1	0	1	0	0	0
Port Barre	2	560	0	0	0	2
Plumb Bob	0	0	0	0	0	1
Potash	0	0	0	0	0	1
Quarantine Bay	1	269	0	0	0	2
Raceland	0	0	0	0	0	1
S. Roanoke	0	0	0	0	1	0
Starks	0	0	0	0	1	1
Sweet Lake	1	288	0	0	1	0
S. Jennings	0	0	0	0	0	3
Valentine	0	0	0	0	0	1
Vermilion Bay	0	0	0	0	0	1
Villa Platte	5	1,353	0	0	2	8
Venice	0	0	0	0	0	1
W. Lake Verrett	0	0	0	0	0	1
W. Cote Blanche	1	24	0	0	1	0
W. Gueydan	0	0	0	0	0	1
White Castle	1	561	0	0	1	1
Woodlawn	3	684	0	0	0	1
Miscellaneous	5	0	5	0	1	23
Ttl. Mar.	92	25,052	18	1	23	122
Ttl. Feb.	64	18,354	12	0	17	143
Difference	28	6,698	6	1	6	21

ARKANSAS

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.
Arkansas	1	0	1	0	0	1
Calhoun	0	0	0	0	0	1
Clark	0	0	0	0	0	3
Columbia	7	2,660	0	0	1	14
Craighead	1	0	1	0	0	0
Faulkner	0	0	0	0	0	1
Hot Springs	0	0	0	0	0	1
Howard	1	9	1	0	1	0
Lafayette	0	0	0	0	1	3
Little River	1	0	1	0	0	0
Lonoke	1	6	1	0	0	3
Miller—Rodessa	2	215	0	0	0	0
Miller—other	0	0	0	0	0	1
Nevada	2	20	0	0	0	1
Ouachita	0	0	0	0	0	2
Paluski	0	0	0	0	0	1
Saline	0	0	0	0	0	1
Sevier	0	0	0	0	0	1
St. Francis	0	0	0	0	1	0
Union	3	330	2	0	1	6
Ttl. Mar.	19	3,225	7	0	5	40
Ttl. Feb.	12	3,920	3	0	4	38
Difference	7	695	4	0	1	2

NORTH LOUISIANA

Parish—	Comp.	Prod.	Dry	Gas*	Rgs.	Dig.
Bienville	1	0	1	0	0	0
Bossier	4	495	1	0	1	3
Caddo—Rodessa	0	0	0	0	0	1
Caddo—other	34	2,518	2	0	2	21
Caldwell	1	0	1	0	0	1
Catahoula	0	0	0	0	0	1
Claiborne	0	0	0	0	0	2
De Soto	0	0	0	0	0	2
Grant	0	0	0	0	0	2
La Salle	2	490	0	0	0	4
Madison	0	0	0	0	0	1
Morehouse	2	0	0	2	1	0
Natchitoches	0	0	0	0	0	2
Sabine	5	260	1	0	1	6
Tensas	0	0	0	0	0	1
Union	3	0	0	3	0	2
Webster	4	1,318	1	0	0	4
Ttl. Mar.	56	5,081	7	5	5	53
Ttl. Feb.	34	1,850	5	7	10	51
Difference	22	3,231	2	2	5	2

*Gas production: Morehouse Parish, 3,500,000 cu. ft.; Union Parish, 5,000,000 cu. ft.

MISSISSIPPI

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.
Attala	0	0	0	0	0	1
Choctaw	0	0	0	0	0	1
Clarke	0	0	0	0	0	1
Copiah	0	0	0	0	0	2
Hinds	0	0	0	0	0	1
Holmes	0	0	0	0	0	1
Humphreys	0	0	0	0	0	1
Issequena	1	0	1	0	0	1
Itawamba	0	0	0	0	0	1
Kemper	0	0	0	0	0	1
Lamar	0	0	0	0	0	1
Madison	0	0	0	0	1	1
Monroe	0	0	0	0	0	1
Pike	0	0	0	0	0	1
Prentiss	0	0	0	0	0	1
Sharkey	0	0	0	0	0	1
Simpson	0	0	0	0	0	1
Stone	0	0	0	0	1	0
Warren	0	0	0	0	0	2
Wayne	0	0	0	0	0	1
Yazoo	11	5,385	3	0	1	14
Ttl. Mar.	12	5,385	4	0	3	35
Ttl. Feb.	9	4,070	2	0	3	26
Difference	4	1,315	2	0	0	9

ALABAMA

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.
Choctaw	0	0	0	0	0	1
Houston	0	0	0	0	0	1
Lawrence	0	0	0	0	0	1
Mobile	0	0	0	0	0	1
Ttl. Mar.	0	0	0	0	0	4
Ttl. Feb.	0	0	0	0	1	3
Difference	0	0	0	0	1	1

GEORGIA

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.
Clinch	0	0	0	0	1	1
Dade	0	0	0	0	0	1
Montgomery	0	0	0	0	0	1
Ttl. Mar.	0	0	0	0	1	3
Ttl. Feb.	0	0	0	0	0	3
Difference	0	0	0	0	1	0

FLORIDA

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.
Dade	0	0	0	0	0	1
Levy	0	0	0	0	0	2
Nassau	0	0	0	0	0	1
Suwannee	0	0	0	0	0	2
Ttl. Mar.	0	0	0	0	0	6
Ttl. Feb.	0	0	0	0	0	6
Difference	0	0	0	0	0	0

ROCKY MOUNTAIN AREA

New Mexico

County—	Comp.	Prod.	Dry	Gas	Rgs.	Ttl.
Chaves	2	20	1	0	0	4
Dona Ana	0	0	0	0	0	2
Eddy	22	8,239	3	2	13	65
Grant	0	0	0	0	0	1
Lea	28	10,192	1	2	11	50
Luna	0	0	0	0	0	1
Otero	0	0	0	0	0	2
Socorro	0	0	0	0	0	1
Bernalillo	0	0	0	0	0	2
McKinley	0	0	0	0	0	1
San Juan	2	25	0	1	1	4
San Miguel	1	0	1	0	0	1
Torrance	0	0	0	0	0	1
Valencia	0	0	0	0	0	2
Ttl. Mar.	55	18,476	6	5	25	137
Ttl. Feb.	60	19,716	7	2	22	135
Difference	5	1,240	1	3	3	3

Colorado

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.
Adams	0	0	0	0	0	1
Boulder	0	0	0	0	0	1
Custer	1	0	1	0	0	0
El Paso	0	0	0	0	0	1
Fremont	0	0	0	0	0	1
Huerfano	0	0	0	0	0	6
Jackson	0	0	0	0	0	1
La Plata	0	0	0	0	0	1
Larimer	1	0	1	0	0	1
Las Animas	0	0	0	0	0	1
Logan	0	0	0	0	0	1
Moffat	0	0	0	0	1	3
Montezuma	0	0	0	0	0	1
Park	0	0	0	0	0	1
Pueblo	0	0	0	0	0	1
Rio Blanco	0	0	0	0	0	2
Routt	0	0	0	0	0	1
Washington	0	0	0	0	0	1
Ttl. Mar.	2	0	2	0	1	25
Ttl. Feb.	0	0	0	0	0	25
Difference	2	0	2	0	0	0

Montana

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.
Blaine	0	0	0	0	0	2
Carbon	1	0	1	0	1	3
Fergus	0	0	0	0	0	1
Glacier	7	669	2	0	1	9
Hill	0	0	0	0	0	1
Petroleum	0	0	0	0	0	2
Pondera	0	0	0	0	0	1
Toole	2	0	2	0	2	18
Miscellaneous	0	0	0	0	0	6
Ttl. Mar.	10	669	5	0	4	43
Ttl. Feb.	9	939	2	0	3	33
Difference	1	270	3	0	1	10

Wyoming

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.
Big Horn	0	0	0	0	0	3
Carbon	1	54	0	0	0	3
Converse	0	0	0	0	1	3
Fremont	1	18	0	0	0	5
Hot Springs	0	0	0	0	0	4
Lincoln	0	0	0	0	0	2
Natrona	0	0	0	0	0	5
Niobrara	7	15,986	1	0	4	13
Park	0	0	0	0	1	1
Subiette	1	25	0	0	1	4
Sweetwater	1	150	0	0	0	3
Uinta	0	0	0	0	0	5
Weston	2	2	1	0	1	6
Miscellaneous	0	0	0	0	0	4
Ttl. Mar.	13	16,233	2	0	8	61
Ttl. Feb.	10	6,594	1	1	7	50
Difference	3	9,639	1	1	1	2

EASTERN KENTUCKY

County—	Comp.	Prod.	Dry	Gas	Rgs.	Ttl.
Magoffin	1	5	0	0	0	1
Floyd	2	0	0	2	2	5
Knott	1	0	0	1	0	7
Martin	3	50	0	2	4	4
Lawrence	1	0	0	1	0	0
Pike	1	0	0	1	1	3
Wolfe	0	0	0	0	0	1
Morgan	0	0	0	0	0	3
Breathitt	0	0	0	0	0	1
Ttl. Mar.	9	55	0	7	7	25
Ttl. Feb.	8	60	1	5	6	32
Difference	1	5	0	2	1	7

Note: Production from above gas wells is 1,914,000 cu. ft.

WESTERN KENTUCKY

County—	Comp.	Prod.	Dry	Gas	Rgs.	Ttl.
Breckinridge	1	0	1	0	0	2
Caldwell	0	0	0	0	0	1
Christian	0	0	0	0	0	2
Daviess	7	95	4	0	0	15
Hancock	3	25	2	0	0	6
Henderson	2	125	1	0	2	5
Hopkins	0	0	0	0	0	1
Livingston	1	0	1	0	0	1
Logan	0	0	0	0	0	2
McCracken	0	0	0	0	0	1
McLean	0	0	0	0	0	5
Meade	1	0	1	0	0	0
Muhlenberg	1	0	1	0	0	1
Ohio	4	35	2	0	0	15
Todd	0	0	0	0	0	2
Webster	0	0	0	0	0	2
Ttl. Mar.	20	280	13	0	2	61
Ttl. Feb.	21	600	9	0	2	57
Difference	1	320	4	0	0	4

INDIANA

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.
Clark	1	0	1	0	0	0
Hartman	1	0	1	0	0	0
Daviess	0	0	0	0	0	1
Dubois	1	0	1	0	0	3
Gibson	9	663	4	0	3	16
Hancock	1	12	0	0	0	0
Greene	0	0	0	0	0	2
Jay	1	14	0	0	0	2
Jackson	1	0	1	0	0	0
Knox	0	0	0	0	0	4
Lagrange	0	0	0	0	0	1
Madison	0	0	0	0	0	1
Martin	2	0	2	0	0	2
Owen	0	0	0	0	1	2
Perry	0	0	0	0	0	1
Pike	1	0	1	0	0	2
Porter	1	0	1	0	0	0
Posey	5	365	1	0	0	9
Putnam	0	0	0	0	1	0
Randolph	0	0	0	0	0	2
Ripley	0	0	0	0	0	1
Spencer	4	46	0	2	2	8
St. Joseph	0	0	0	0	0	1
Sullivan	1	0	1	0	0	3
Vanderburg	1	50	1	0	0	1
Vigo	1	0	0	0	0	0
Warrick	0	0	0	0	0	2
Whitley	0	0	0	0	0	1
Ttl. Mar.	31	1,150	15	2	7	65
Ttl. Feb.	19	724	8	3	5	65
Difference	12	426	7	1	2	0

ILLINOIS

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.
Adams	0	0	0	0	0	1
Alexander	0	0	0	0	0	1
Brown	0	0	0	0	0	1
Bureau	0	0	0	0	0	1
Bond	1	0	1	0	0	6
Clark	2	4	0	1	0	5
Clay	3	410	1	0	0	1
Clinton	37	17,411	0	0	13	78
Coles	0	0	0	0	0	2
Crawford	0	0	0	0	1	2
Christian	1	0	1	0	0	0
Cass	0	0	0	0	0	1
DeWitt	0	0	0	0	0	1
Edwards	1	145	0	0	1	3
Edgar	0	0	0	0	0	3
Effingham	0	0	0	0	1	1
Fayette	36	5,911	2	0	4	35
Gallatin	4	115	3	0	1	1
Hamilton	0	0	0	0	0	1
Henry	0	0	0	0	0	1
Iroquois	0	0	0	0	0	1
Jackson	0	0	0	0	0	3
Jasper	1	0	1	0	0	0
Jersey	1	0	1	0	0	1
Jefferson	2	141	0	0	0	1
Lawrence	4	0	2	2	2	7
Madison	0	0	0	0	0	2
Marion	90	120,469	4	0	21	137
McDonough	0	0	0	0	0	1
Macon	0	0	0	0	0	1
Monroe	3	15	2	0	0	6
Montgomery	1	0	1	0	0	5
Peoria	0	0	0	0	0	1
Pope	0	0	0	0	0	1
Randolph	1	0	1	0	0	4
Richland	8	539	1	0	9	4
Saline	0	0	0	0	1	0
Schuyler	0	0	0	0	0	1
Shelby	1	0	1	0	0	3
St. Clair	0	0	0	0	0	2
Tazewell	1	0	1	0	0	1
Vermillion	0	0	0	0	0	1
Wabash	15	1,496	2	0	5	8
Washington	0	0	0	0	1	4
Wayne	12	1,158	4	0	1	14
White	21	4,096	2	1	4	37
Williamson	2	0	2	0	1	1
Ttl. Mar.	248	151,910	33	4	66	392
Ttl. Feb.	298	334,028	30	3	70	400
Difference	50	182,018	6	1	4	8

MICHIGAN

Field—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.
Allegan	24	2,547	10	0	4	29
Arenac	0	0	0	0	0	2
Barry	2	0	2	0	0	4
Bay	0	0	0	0	0	1
Berrien	1	0	1	0	0	2
Calhoun	1	0	1	0	1	1
Cass	0	0	0	0	0	2
Clinton	0	0	0	0	0	2
Clare	6	356	2	1	3	8
Genessee	0	0	0	0	1	0
Gratiot	0	0	0	0	1	1
Isabella	11	1,591	2	0	3	16
Huron	0	0	0	0	0	1
Jackson	0	0	0	0	0	1
Kalamazoo	2	0	2	0	1	1
Kent	16	1,925	8	0	7	20
Mackinac	0	0	0	0	0	1
Mason	1	0	1	0	0	0
Missaukee	2	0	2	0	0	1
Midland	1	0	1	0	0	4
Monroe	3	150	1	0	1	0
Montcalm	1	0	0	1	0	3
Muskegon	0	0	0	0	0	3
Oakland	0	0	0	0	0	0
Ogemaw	1	15	0	0	1	2
Otsego	0	0	0	0	0	1
Ottawa	13	1,090	3	0	4	14
St. Clair	0	0	0	0	0	2
Shiawassee	1	0	1	0	0	2
Tuscola	1	65	0	0	0	2
Van Buren	11	75	10	0	4	12
Wexford	0	0	0	0	0	1
Eaton	1	0	1	0	0	0
Oceana	1	0	1	0	0	0
Hillsdale	0	0	0	0	1	0
Ionia	0	0	0	0	0	1
Lewanee	0	0	0	0	1	0
Mecosta	0	0	0	0	1	0
Osceola	0	0	0	0	0	1
Ttl. Mar.	100	7,814	49	2	34	150
Ttl. Feb.	97	16,930	25	4	39	167
Difference	3	9,116	24	2	5	17

EASTERN FIELDS

Field—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.
Allegany	80	91	0	0	9	76
Bradford	240	1,296	0	0	28	228
N. Oriskany	4	0	3	1	3	17
Middle dist.	13	7	0	1	4	27
Butler-Armstrong	3	2	1	1	8	8
SW Penna.	20	5	5	14	9	43
SE Ohio	31	115	4	6	7	40
W. Virginia	48	56	5	30	16	90
Ttl. Mar.	439	1,572	18	53	84	529
Ttl. Apr.	483	751	15	67	137	500
Differenve	44	821	3	14	53	29

LIMA FIELD

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.
Allen	0	0	0	0	0	1
Greene	0	0	0	0	0	1
Hancock	1	0	1	0	0	0
Henry	0	0	0	0	0	3
Putnam	0	0	0	0	1	0
Seneca	1	0	0	1	0	0
Wyandot	1	0	1	0	0	0
Wood	0	0	0	0	1	0
Ttl. Mar.	3	0	2	1	2	5
Ttl. Feb.	0	0	0	0	1	3
Difference	3	0	2	1	1	2

OHIO

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dig.
Ashland	0	0	0	0	0	2
Athens	2	0	1	1	3	11
Belmont	0	0	0	0	0	1
Coshocton	1	72	0	0	1	2
Cuyahoga	0	0	0	0	1	4
Fairfield	2	0	1	1	0	2
Franklin	0	0	0	0	0	1
Gallia	1	0	0	1	0	1
Guernsey	3	0	0	3	1	11
Hocking	0	0	0	0	1	2
Holmes	0	0	0	0	4	1
Knox	4	0	2	2	3	4
Lawrence	0	0	0	0	1	3
Licking	11	10	5	5	6	17
Lorain	2	0	2	0	1	1
Medina	19	115	4	2	5	6
Meigs	2	0	2	0	1	5
Monroe	4	7	1	1	0	6
Morgan	4	4	2	1	1	2
Muskingum	0	0	0	0	2	7
Noble	4	0	0	2	2	8
Perry	1	0	0	1	4	7
Stark	0	0	0	0	1	5
Summit	0	0	0	0	0	1
Tuscarawas	2	0	1	1	2	5
Vinton	0	0	0	0	0	1
Washington	4	13	2	0	2	11
Wayne	0	0	0	0	1	2
Ttl. Mar.	66	221	23	21	43	129
Ttl. Feb.	57	340	13	24	44	117
Difference	9	119	10	3	1	12

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well location, and county—	S.T.R.	Depth	Status—
Union Oil, No. 76 Callender, Dominguez, Los Ang.	32- 3-13	7,480	O.S. drlg.
Shell Oil, No. 102 Reyes, Dominguez, Los Angeles	33- 3-13	8,065	P.B. 7,950
Shell Oil, No. 103 Reyes, Dominguez, Los Angeles	34- 3-13	....	rigging up
Havenstrite, R. E., No. 3 Larronde, Doming., L. A.	32- 3-13	148	sd. sh. drlg.
Morton & Elder, No. 2 Dominguez, Doming., L. A.	3- 4-13	7,426	dry; abd.
Apex Pet., No. 1 Hatfield, Rosecrans, Los Angeles	20- 3-13	9,214	P.B. 8,700
So. Cal. Pet., No. 2 Slabaugh, Rosecrans, Los Angeles	20- 3-13	1,018	sd. sh. drlg.
St. Anthony Oil, No. 3 Gordon, Rosecrans, Los Ang.	19- 3-13	2,994	sd. sh. drlg.
Union Oil, No. 40 Rosecrans, Rosecrans, Los Angeles	19- 3-13	6,993	sd. sh. drlg.
Union Oil, No. 41 Rosecrans, Rosecrans, Los Angeles	19- 3-13	....	rigging up
Howard Oil, No. 1 Byrens, Rosecrans, Los Angeles	20- 3-13	....	rigging up
Royalty Service, No. 1 Cement, Rosecrans, Los Ang.	20- 3-13	9,148	idle
Kelly & Sons, No. 2 McMillen, Rosecrans, Los Ang.	20- 3-13	7,334	O.S. drlg.
Thorley Oil, No. 1 Athens, Rosecrans, Los Angeles	7- 3-13	2,050	sd. sh. drlg.
El Rey Oil, No. 1 Westmore, Athens, Los Angeles	2- 3-14	9,063	idle
Vanguard Oil, No. 1 L.A.I., Centinella, Los Angeles	29- 2-14	380	sd. sh. drlg.
Turf Oil, No. 1 H.R.A., Potrero, Los Angeles	34- 2-14	4,910	tested wet
Tide Water A. O., No. 12 Porter, Aliso Canyon, L. A.	27- 3-16	7,551	flow 200 b.d.
Tide Water A. O., No. 13 Porter, Aliso Canyon, L. A.	27- 3-16	3,210	sd. sh. drlg.
Brit. Amer. Oil, No. 1 Perkins, Newhall, Los Angeles	14- 3-16	4,550	sd. sh. drlg.
Consolidated Pet., No. 4 Needham, Newhall, L. A.	13- 3-16	4,401	cleaning out
Barnsdall Oil, No. 9 R.S.F., Newhall, Los Angeles	27- 4-17	7,195	completing
Barnsdall Oil, No. 10 R.S.F., Newhall, Los Angeles	26- 4-17	5,992	sd. sh. drlg.
General Pet., No. 7 Blinn, Wilmington, Los Angeles	35- 4-13	3,300	flow 125 b.d.
General Pet., No. 103 P.E., Wilmington, Los Angeles	35- 4-13	2,255	sd. sh. drlg.
Barnhart & Morrow, No. 1 Comm., Wilmington, L. A.	32- 4-13	3,720	flow 385 b.d.
Continental Corp., No. 5 L.A.C.F.C., Wilming., L. A.	2- 5-13	2,750	sd. sh. drlg.
Franco-Amer. Pet., No. 2 Harbor, Wilmington, L. A.	32- 4-13	2,685	sd. sh. drlg.
Hancock Oil, No. 15-A Harbor, Wilmington, L. A.	35- 4-13	4,063	flow 1,015 b.d.
Hancock Oil, No. 27-A Harbor, Wilmington, L. A.	35- 4-13	2,371	sd. sh. drlg.
Long Beach Dev., No. 10-W-X Harbor, Wilm., L. A.	3- 5-13	4,094	flow 120 b.d.
Lonb Beach Dev., No. 11-W Harbor, Wilm., L. A.	3- 5-13	3,350	sd. sh. drlg.
MacMillan Pet., No. 6 Hayes, Wilmington, L. A.	3- 5-13	3,548	completing
Morton & Elder, No. 1 Harbor, Wilmington, L. A.	35- 4-13	3,266	sd. sh. drlg.
Padreson Oil, No. 1-A Harbor, Wilmington, L. A.	35- 4-13	3,431	flow 169 b.d.
Union Pacific R. R., No. 131, Wilmington, L. A.	3- 5-13	5,297	tested wet
Union Pacific R. R., No. 133, Wilmington, L. A.	3- 5-13	5,014	redrlg. 3,790
Union Pacific R. R., No. 134, Wilmington, L. A.	3- 5-13	4,008	flow 510 b.d.
Union Pacific R. R., No. 135, Wilmington, L. A.	4- 5-13	5,197	sd. sh. drlg.
Union Pacific R. R., No. 137, Wilmington, L. A.	4- 5-13	3,630	sd. sh. drlg.
Union Pacific R. R., No. 139, Wilmington, L. A.	3- 5-13	2,670	sd. sh. drlg.
Union Pacific R. R., No. 23-E, Wilmington, L. A.	3- 5-13	2,660	sd. sh. drlg.
Union Pacific R. R., No. 24-E, Wilmington, L. A.	3- 5-13	2,550	sd. sh. drlg.
Wilbur, V. R., No. 3 Kreiger, Wilmington, L. A.	32- 4-13	3,490	sd. sh. drlg.
West Whittier Oil, No. 1 Pellissier, Whittier, L. A.	17- 2-11	3,164	pump 50 b.d.
Kern Oil, No. 34 Monterey, Montebello, Los Angeles	2- 2-12	7,805	completing
Kern Oil, No. 3 Eggleston, Montebello, Los Angeles	2- 2-12	4,084	sd. sh. drlg.
Bush Oil, No. 2 Mihlfred, Montebello, Los Angeles	3- 2-12	8,481	P.B. 7,720
C. A. P. Oil, No. 1 Dutch, Montebello, Los Angeles	11- 2-12	7,657	redrlg. 7,530
Chemical Oil, No. 1 Chemiculture, Montebello, L. A.	12- 2-12	1,194	sd. sh. drlg.
Columbia Oil, No. 1 Schelnik, Montebello, L. A.	3- 2-12	8,154	P.B. 7,970
Getty-Pac. West., No. 1 Star, Montebello, Los Angeles	10- 2-12	5,458	sd. sh. drlg.
Grace Oil, No. 1 Duhrsen, Montebello, Los Angeles	3- 2-12	7,505	tested wet
Mabee Co., No. 39 Monterey, Montebello, Los Angeles	2- 2-12	7,790	O.S. drlg.
Mabee Co., No. 43 Monterey, Montebello, Los Angeles	2- 2-12	7,681	O.S. drlg.
Mono Oil, No. 1 Foreman, Montebello, Los Angeles	2- 2-12	7,710	flow 250 b.d.
Montebello Oil, No. 2 Wallace, Montebello, L. A.	3- 2-12	4,031	sd. sh. drlg.
Texas Co., No. 4 Wilcox, Montebello, Los Angeles	3- 2-12	4,963	sd. sh. drlg.
Winlock Oil, No. 1 Win, Montebello, Los Angeles	11- 2-12	7,590	cleaning out
Allied Pet., No. 34 Signal, Long Beach, Los Angeles	30- 4-12	10,065	cmtd. 9,730
Unity Oil, No. 1 Donna, Long Beach, Los Angeles	24- 4-13	3,568	sd. sh. drlg.
Kern Pet., No. 1 Signal, Long Beach, Los Angeles	24- 4-13	3,623	sd. sh. drlg.
Sunset Oil, No. 2 Whitney, Long Beach, Los Angeles	19- 4-12	3,396	sd. sh. drlg.
Dormax Oil, No. 2 Signal, Long Beach, Los Angeles	30- 4-12	3,702	sd. sh. drlg.
Exeter Oil, No. 3 Olson, Long Beach, Los Angeles	19- 4-12	4,597	sd. sh. drlg.
Dunlap, D. D., No. 15 Signal, Long Beach, L. A.	19- 4-12	2,853	cmtd. 2,450
Great Northern Oil, No. 1 Oak, Richfield, Orange	28- 3- 9	3,315	pump 70 b.d.
Tucker, H. M., No. 1 Heath, Buena Park, Orange	34- 3-11	1,494	sd. sh. drlg.
Sonwell Oil, No. 2 Coyote, East Coyote, Orange	13- 3-10	2,496	sd. sh. drlg.
Standard Oil, No. 69 Emery, West Coyote, Orange	24- 3-11	3,260	sd. sh. drlg.
Southwest Expl., No. 26 State, Huntington B., Orange	10- 6-11	5,398	sd. sh. drlg.
Clear View Oil, No. 1 Williams, Hunting. B., Orange	36- 5-11	4,286	O.S. drlg.
Pacific Amer. Oil, No. 6 Book, Hunting. B., Orange	36- 5-11	3,873	pump 20 b.d.
South Basin Oil, No. 93 H.B., Huntington B., Orange	2- 6-11	7,590	redrlg. 5,599
Hellman Estate, No. 5 Hellman, Seal Beach, Orange	11- 5-12	4,900	sd. sh. drlg.
United Oil, No. 1 Schimming, Stanton, Orange	25- 4-11	5,391	sd. sh. drlg.
Bird & Chambers, No. 1 Owens, Garden Gr., Orange	31- 4-10	1,200	D.P. stuck

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well location, and county—	S.T.R.	Depth	Status—
Union Oil, No. 18 Cal-Coast, Santa Maria, Sant. Barb.	26- 9-34	3,496	sd. sh. drlg.
Oil Group, No. 1 Hyland, Summerland, Sant. Barb.	16- 4-26	2,365	sd. sh. drlg.
Levesque, G. M., No. 1 Robertson, Simi, Ventura	17- 2-18	2,340	idle
Ohio Oil, No. 1 Vail, Moor Park, Ventura	10- 2-19	5,714	dry; abd.
Santa Clara Oil, No. 15 Calument, Shiells Can., Ven.	3- 3-19	3,324	flow 300 b.d.
Rio Hondo Oil, No. 1 Cosby, Hopper Canyon, Vent.	14- 4-19	1,192	sd. sh. drlg.
Continental Oil, No. 15 Grubb, San Miguelito, Vent.	24- 3-24	6,525	flow 2,240 b.d.
Continental Oil, No. 16 Grubb, San Miguelito, Vent.	24- 3-24	363	sd. sh. drlg.
C. C. M. Oil, No. 6-B Hobson, Rincon, Ventura	17- 3-24	4,418	pump 15 b.d.
C. C. M. Oil, No. 31-B Hobson, Rincon, Ventura	17- 3-24	2,864	sd. sh. drlg.
C. C. M. Oil, No. 9-A Hobson, Rincon, Ventura	15- 3-24	5,925	O.S. drlg.
Tide Water A. O., No. 45 V.L.W., Vent. Ave., Vent.	23- 3-23	9,525	reaming
Tide Water A. O., No. 17 McGonigle, Vent. Ave., Vent.	23- 3-23	7,254	sd. sh. drlg.
Tide Water A. O., No. 119 Lloyd, Vent. Ave., Vent.	27- 3-23	7,531	sd. sh. drlg.
Tide Water A. O., No. 18 Hartman, Vent. Ave., Vent.	22- 3-23	10,885	redrlg. 10,651
Tide Water A. O., No. 22 Hartman, Vent. Ave., Vent.	22- 3-23	6,260	sd. sh. drlg.
Tide Water A. O., No. 25 Hartman, Vent. Ave., Vent.	22- 3-23	2,588	sd. sh. drlg.
Shell Oil, No. 55 Taylor, Ventura Ave., Ventura	28- 3-23	4,750	deepening
Shell Oil, No. 114 Taylor, Ventura Ave., Ventura	29- 3-23	7,100	flow 3,260 b.d.
Shell Oil, No. 115 Taylor, Ventura Ave., Ventura	29- 3-23	7,090	flow 915 b.d.
Cal. Alliance Pet., No. 2 Hartmann, Vent. Ave., Vent.	22- 3-23	9,490	O.S. drlg.
Cal. Alliance Pet., No. 1 Schmidt, Vent. Ave., Vent.	21- 3-23	4,762	sd. sh. drlg.
British American Oil, No. 1 Barn., Vent. Ave., Vent.	22- 3-23	2,083	sd. sh. drlg.
Lloyd Corp., No. 5 Dabney, Ventura Ave., Ventura	24- 3-12	1,894	sd. sh. drlg.
Trigg, H. C., No. 1 Den, Devil's Den, Kern	11-25-18	496	cleaning out
Franco-Western Oil, No. 18 Front, McKittrick, Kern	8-30-22	2,085	O.S. drlg.
Cal. Crude Oil, No. 5 Front, McKittrick, Kern	34-30-22	1,194	sd. sh. drlg.
Mid-State Pet., No. 1 Welport, McKittrick, Kern	26-29-21	1,214	cleaning out
Union Oil, No. 1 Weston, Belridge, Kern	13-29-21	6,260	sd. sh. drlg.
Belridge Oil, No. 23-1 fee, North Belridge, Kern	1-28-20	8,040	br. sh. drlg.
Belridge Oil, No. 64-27 fee, North Belridge, Kern	27-27-20	8,062	cleaning out
Texas Co., No. 1 Theta, Shale Hills, Kern	12-28-19	3,395	redrlg. 2,290
Bishop Oil, No. 2 Buchner, Mount Poso, Kern	20-26-28	1,526	rig to pump
Vedder Pet., No. 21-2 Lambert, Mount Poso, Kern	21-26-28	1,565	O.S. drlg.
Hearte & Tracy, No. 1 Hooper, Mount Poso, Kern	36-26-27	3,050	fish bit
Premier Extension Oil, No. 1 South, Jasmine, Kern	33-25-27	1,587	cleaning out
McDonald & Dearin, No. 5 Kernco, Kern Front, Kern	11-28-27	712	sd. sh. drlg.
Dick & Dore Oil, No. 24 Kern, Kern River, Kern	34-28-28	649	pump 5 b.d.
Dick & Dore Oil, No. 26 Kern, Kern River, Kern	34-28-28	475	sd. sh. drlg.
Dick & Dore Oil, No. 28 Kern, Kern River, Kern	34-28-28	607	pump 5 b.d.
Dick & Dore Oil, No. 29 Kern, Kern River, Kern	34-28-28	350	sd. sh. drlg.
Hast Oil, No. 7 Kern, Kern River, Kern	34-28-28	586	rig to pump
Helm & Smith, No. 19 Kern, Kern River, Kern	34-28-28	687	pump 5 b.d.
Helm & Smith, No. 21 Kern, Kern River, Kern	34-28-28	161	sd. sh. drlg.
Frampton, Ray, No. 1 Kernco, Kern River, Kern	12-28-27	370	idle
Shell Oil, No. 1 Brandt, Round Mountain, Kern	33-28-29	2,190	fish bit
Grizzly Bear Oil, No. 4 Kelly, Round Mountain, Kern	6-28-29	1,815	will redri.
Goodrum & Vincent, No. 3 S.P., Edison, Kern	31-29-30	803	idle
Goodrum & Vincent, No. 4 S.P., Edison, Kern	31-29-30	420	O.S. drlg.
Wood-Callahan Oil, No. 1 Comm., Edison, Kern	21-30-29	4,981	redrlg. 4,420
Morton, L. C., No. 1 Jewett, Arvin, Kern	23-31-29	4,350	sd. sh. drlg.
Western Gulf Oil, No. 45-B, KCL, Fruitvale, Kern	22-29-27	9,461	hd. sh. drlg.
Standard Oil, No. 1-2 Tulare, Delano Gas Field, Kern	34-24-23	2,495	10,150 M.c.f.
Standard Oil, No. 4 Mushrush, Wasco, Kern	7-27-24	12,494	sd. sh. drlg.
Continental Oil, No. 1 Meyer, Wasco, Kern	7-27-24	13,120	O.S. drlg.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
B. ck., bottom choke.
Br. sh., brown shale.
B.S., basic sediment.
C.&P., cellar and pits.
Cd. or Crd., cored.
C.D., correct depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg., or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.S.T., drill-stem test.
D.P., drill pipe.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe-line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Recvd., recovered.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtrk. or St., sidetracked.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel-line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas, and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T. ck., top choke.
T.P., tubing pressure.
Tr., tract.
Tstd., tested.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.O.O., waiting on orders.
W.P., working pressure.
W.S.O., water shutoff.
W.S.O.O.K., water shutoff O.K.
W.S.R. or W.O.S.R., awaiting standard rig
Wtr., water.

Continental Oil, No. 1 Community, Shafter, Kern	12-28-24	12,701	gr. sd. drlg.
Union Oil, No. 32-34, KCL, Rio Bravo, Kern	34-28-25	10,490	sd. sh. drlg.
Union Oil, No. 54-34, KCL, Rio Bravo, Kern	34-28-25	3,385	sd. sh. drlg.
Superior Oil, No. 3 Fink, Rio Bravo, Kern	28-28-25	10,746	sd. sh. drlg.
Superior Oil, No. 2 Weber, Rio Bravo, Kern	27-28-25	9,550	sd. sh. drlg.
Superior Oil, No. 3 Smith, Rio Bravo, Kern	34-28-25	11,370	O.S. drlg.
Superior Oil, No. 1 Merrill, Greeley, Kern	1-29-25	2,983	sd. sh. drlg.
Standard Oil, No. 11-23, KCL, Greeley, Kern	18-29-26	11,406	O.S. drlg.
Standard Oil, No. 12-8, KCL, Greeley, Kern	7-29-26	10,294	sd. sh. drlg.
General Pet., No. 1 Oughton, Greeley, Kern	12-29-25	9,566	sd. sh. drlg.
General Pet., No. 2 Sullivan, Greeley, Kern	12-29-25	9,050	sd. sh. drlg.
Shell Oil, No. 63-25-B, KCL, Ten Section, Kern	29-30-26	8,096	sd. sh. drlg.
Shell Oil, No. 76-29-A, KCL, Ten Section, Kern	29-30-26	6,674	sd. sh. drlg.
Shell Oil, No. 38-30-B, KCL, Ten Section, Kern	30-30-26	6,992	sd. sh. drlg.
Tide Water-Continental, No. 33-7-E, KCL, Strand, Kn.	7-30-26	8,250	sd. sh. drlg.
Shell Oil, No. 86-12-B, KCL, Strand, Kern	12-30-25	3,597	sd. sh. drlg.
Shell-Ohio, No. 64-12-A, KCL, Strand, Kern	12-30-25	8,539	P.B. 8,280
Ohio Oil, No. 18-E, KCL, Canal, Kern	18-30-25	8,245	flow 890 b.d.
Richfield Oil, No. 38-28-A, KCL, Tupman, Kern	28-30-25	7,882	sd. sh. drlg.
Richfield Oil, No. 74-32-A, KCL, Tupman, Kern	32-30-25	8,633	redrlg. 8,630
Richfield Oil, No. 72-33-B, KCL, Tupman, Kern	33-30-25	9,390	flow 1,450 b.d.
Richfield Oil, No. 78-29-A, KCL, Tupman, Kern	29-30-25	8,396	sd. sh. drlg.
Richfield Oil, No. 276-29-A, KCL, Tupman, Kern	29-30-25	5,991	sd. sh. drlg.
Richfield Oil, No. 12-3-C, KCL, Cole's Levee, Kern	3-31-25	9,413	redrlg. 9,360
Ohio Oil, No. 8-F, KCL, Cole's Levee, Kern	11-31-25	6,572	sd. sh. drlg.
Tide Water A. O., No. 72, KCL, Cole's Levee, Kern	14-31-25	10,201	dry; abd.
Foster, Robert, No. 1 Hollingsworth, Mid.-Sun., Kern	22-32-23	1,161	gr. sd. drlg.
General Pet., No. 1 B.V.A., Midway-Sunset, Kern	1-32-24	11,886	idle
Signal Oil & Gas, No. 7 Kendon, Midway-Sunset, Kern	35-32-23	2,505	hd. sd. drlg.
Shell Oil, No. 45-9 B.V.A., Midway-Sunset, Kern	9-32-25	11,415	hd. sd. drlg.
National Oil, No. 36 Sunset, Midway-Sunset, Kern	35-32-23	1,456	completing
McDonald, Joseph, No. 19 Midway, Mid.-Sun., Kern	26-31-22	1,544	O.S. drlg.
Texas Co., No. 39 Midway, Midway-Sunset, Kern	32-32-24	3,195	pump 285 b.d.
Tide Water A. O., No. 4 Midway, Midway-Sun., Kern	35-31-22	1,265	O.S. drlg.
Ohio Oil, No. 43-3-B, KCL, Paloma, Kern	3-32-26	10,361	fish D.P.
Western Gulf-Texas, No. 74-3-A, KCL, Paloma, Kern	3-32-26	11,190	hd. sh. drlg.
Oil Scout, No. 1 Tejon, Comanche Point, Kern	27-32-20	5,505	no showing
Richfield Oil, No. 1 Hill, Tejon Ranch, Kern	2-10-19	3,296	sd. sh. drlg.
Jergins Trust, No. 1 Cheney, Panoche Creek, Fresno	29-14-13	7,581	cleaning out
Texas Co., No. 1 S.P., Turk Anticline, Fresno	23-17-15	9,890	sd. sh. drlg.
Tide Water A. O., No. 22 Guardian, E. Coal., Fresno	2-20-15	3,612	flow 1,420 b.d.
Standard Oil, No. 53-19-B fee, NE Coalinga, Fresno	19-19-16	6,973	sd. sh. drlg.
Standard Oil, No. 68-19-B fee, NE Coalinga, Fresno	19-19-16	6,140	sd. sh. drlg.
Standard Oil, No. 82-19-B fee, NE Coalinga, Fresno	19-19-16	5,972	sd. sh. drlg.
Union Oil, No. 55-18 Cook, NE Coalinga, Fresno	18-19-16	5,572	sd. sh. drlg.
Amerada Pet., No. 1-20-B Ewing, NE Coal., Fresno	20-19-16	6,260	sd. sh. drlg.
Texas Co., No. 5-20-B, Kimberlin, NE Coal., Fresno	20-19-16	4,467	sd. sh. drlg.
Superior Oil, No. 4 Husong, NE Coalinga, Fresno	18-19-16	8,015	O.S. drlg.
Pure Oil, No. 44-30-B, NE Coalinga, Fresno	30-19-16	6,581	sd. sh. drlg.
Wilshire Oil, No. 62-30-B, NE Coalinga, Fresno	30-19-16	4,995	sd. sh. drlg.
Lytle, R. S., Agent, No. 35-18-F, SE Coal., Fresno	18-20-16	1,991	sd. sh. drlg.
Lytle, R. S., Agent, No. 48-18-F, SE Coal., Fresno	18-20-16	6,974	sd. sh. drlg.
Lytle, R. S., Agent, No. 68-18-F, SE Coal., Fresno	18-20-16	2,255	sd. sh. drlg.
Univ. Consd. Oil, No. 72-24-C, SE Coalinga, Fresno	24-20-15	....	rigging up
Standard Oil, No. 88-13-C fee, SE Coalinga, Fresno	13-20-15	....	rigging up
Standard Oil, No. 1-19-F fee, SE Coalinga, Fresno	19-20-16	....	rigging up
Standard Oil, No. 22-19-F fee, SE Coalinga, Fresno	19-20-16	7,579	sd. sh. drlg.
Standard Oil, No. 33-19-F fee, SE Coalinga, Fresno	19-20-16	6,940	br. sh. drlg.
Standard Oil, No. 42-19-F fee, SE Coalinga, Fresno	19-20-16	7,760	O.S. drlg.
Superior Oil, No. 2-B Cagle, SE Coalinga, Fresno	6-20-16	8,164	flow 1,307 b.d.
Texas Co., No. 1 Boston, Westhaven, Fresno	14-20-18	10,685	hd. sh. drlg.
Union Oil, No. 9 King, Kettleman North Dome, Fres.	29-21-17	7,575	sd. sh. drlg.
K. N. D. A., No. 27-18-J, Kettleman N. Dome, Fresno	18-21-17	10,930	hd. sd. drlg.
K. N. D. A., No. 322-18-J, Kettleman N. Dome, Fresno	18-21-17	....	rigging up
K. N. D. A., No. 334-18-J, Kettleman N. Dome, Fresno	18-21-17	10,870	sd. sh. drlg.
K. N. D. A., No. 4-16-Q, Kettleman N. Dome, Fresno	16-22-18	6,371	sd. sh. drlg.
K. N. D. A., No. 78-18-Q, Kettleman N. Dome, Kings	18-22-18	....	rigged up
K. N. D. A., No. 34-22-Q, Kettleman N. Dome, Kings	22-22-18	7,775	cleaning out
K. N. D. A., No. 6-26-Q, Kettleman N. Dome, Kings	26-22-18	8,250	completing
K. N. D. A., No. 38-26-Q, Kettleman N. Dome, Kings	26-22-18	8,168	completing
Standard Oil, No. 72-19-J, Kettleman N. Dome, Fresno	19-21-17	10,903	cleaning out
Standard Oil, No. 321-29-J, Kettleman N. Dome, Fres.	29-21-17	9,375	hd. sh. drlg.
Standard Oil, No. 334-29-J, Kettleman N. Dome, Fres.	29-21-17	6,997	sd. sh. drlg.
Standard Oil, No. 57-3-P, Kettleman N. Dome, Kings	3-22-17	8,525	C.P. 8,287
Standard Oil, No. 72-17-Q, Kettleman N. Dome, Kings	17-22-18	8,094	flow 869 b.d.
Standard Oil, No. 41-27-Q, Kettleman N. Dome, Kings	27-22-18	8,160	sd. sh. drlg.
Standard Oil, No. 63-27-Q, Kettleman N. Dome, Kings	27-22-18	7,755	sd. sh. drlg.
Standard Oil, No. 72-27-Q, Kettleman N. Dome, Kings	27-22-18	7,751	sd. sh. drlg.
Standard Oil, No. 83-27-Q, Kettleman N. Dome, Kings	27-22-18	8,308	flow 1,805 b.d.
Standard Oil, No. 85-27-Q, Kettleman N. Dome, Kings	27-22-18	8,295	sd. sh. drlg.
Standard Oil, No. 41-35-Q, Kettleman N. Dome, Kings	35-22-18	7,652	sd. sh. drlg.
Bristol Oil, No. 1 Smith, Kettleman S. Dome, Kings	35-24-19	8,054	cmtd. 4,300
Shell Oil, No. 1 Cohn, Tulare Lake, Kings	4-22-19	11,311	gr. sd. drlg.
R. W. B. Oil & Gas, No. 1 R.W.B., Alpaugh, Tulare	11-24-23	2,676	dry; abd.
Holly Dev., No. 1 Meherin, Huasna, San Luis Obispo	7-32-13	2,896	sd. sh. drlg.
Priest Valley Oil, No. 1 Greve, Priest Val., Monterey	22-20-12	2,290	gr. sh. drlg.
Buttes Oilfields, No. 6 Buttes, Marysville, Sutter	1-15- 1	7,691	idle
Richfield Oil, No. 2 Hill, Potrero, Solano	5- 4- 1	3,788	gr. sh. drlg.
Amerada Pet., No. 1 Carpenter, Rio Vista, Solano	20- 4- 3	....	rig
Tassajara Oil, No. 1 Rasmussen, Tassajara, C. Costa	9- 2- 1	9,777	sd. sh. drlg.

OKLAHOMA

Week Ended April 13

NORTHERN OKLAHOMA

Beckham County

Fred Coogan's No. 1 Kinchen. SE SE SE Sec. 4-9-25w. Dolo. 3,260 ft.; drlg. 3,512 ft.

Caddo County

Sinclair Prairie Oil Co.'s No. 1 Groman. SW NW NW Sec. 1-16-13w. Wlx. 9,179 ft.; sd. 10,074 ft.; cd. 10,871-75 ft.; N. S.; to D.D.

Creek County

Bryan Pet. Co.'s No. 1 Ah-Say. NE NW NE Sec. 34-14-7. Prue 2,556 ft., S.O.; T.D. 2,652 ft.; P. 40 B.O. in 24 hrs.; shot; C.O.

Indo Oil Co.'s No. 1 Slick, NW NW NW Sec. 1-16-9. S.O. 1,145-78 ft.; drlg. 1,181 ft.

Dewey County

Magnolia Pet. Co.'s No. 1 Fiekes. C SW SW Sec. 31-18-14w. D.S.T. rec. mud at 7,718 ft.; cg. 8,936 ft.; sh.

Garfield County

Magnolia's No. 1 Kring, C SE SW Sec. 12-21-3w. Cg. 5,590 ft.

Grant County

Continental Oil Co.'s No. 1 Krichmar, SE SE NE Sec. 28-28-5w. Drlg. 5,488 ft.

Hughes County

J. W. Boydston's No. 1 Robstein, C NW SE Sec. 11-6-9. Drlg. 976 ft.

Hall & Jordan's No. 1-A Barker. SE SE SW Sec. 3-8-9. S.O. in sd. 2,074 ft.; T. D. 2,109 ft.; est. 2 B.O.; S.D.

Southwestern Drlg. Co.'s No. 1 Diamond, C E½ NW SE Sec. 33-9-9. W.O.C. 185 ft.

Kay County

Malarnee Oil Co.'s No. 1 Harris, C SW NE Sec. 14-25-1. Miss. 4,050 ft.: chat with S.O. 4,063-4,105 ft.; T.D. 4,138 ft.; C.O. and swbg.

Kingfisher County

Olsen Drlg. Co.'s No. 1 Geis, C NE SW Sec. 15-18-9w; (O.W.D.D.). O.T.D. 8,507 ft.; C.O.; gas shut off; cg. 8,859 ft., in Hntn.

Phillips Pet. Co.'s No. 1 Drape, C NW SE Sec. 30-18-5w. D.P. stk at 4,293 ft., T.D.

Kiowa County

Frank Dillard et al's No. 1 Hobbs, SE SE NW Sec. 35-6-17w. Set 6⅝-in. 525 ft.; T.D. 690 ft.

J. M. Henry's No. 1 Huff, SW SW NW Sec. 32-7-18w. T.D. 1,784 ft.

Southwestern Okla. O. & G. Co.'s No. 2 Foltz, NW SE SE Sec. 10-6-18w. Drlg. below 718 ft.

Lincoln County

R. M. Purcell et al's No. 1 Wolcott. NW NW NW Sec. 2-13-4e. R.O.G.

McIntosh County

Phillips' No. 1 Blankenship, C SW NW Sec. 33-10-13. T.D. 3,241 ft.; U.R.

Muskogee County

R. Garrett's No. 1 Escoe, SW SW SE Sec. 16-13-17. S.D. 1,665 ft.

Okfuskee County

Burke-Greis' No. 1 Dew, NE NE NE Sec. 9-12-9. R.U.S.T.

C. A. Yoakum's No. 1 Long, C SW SE Sec. 34-12-9. Drlg. 1,827 ft.

C. A. Yoakum's No. 1-A Replogle-Johnson, NW NW NE Sec. 11-11-10. Cg. 3,166 ft.

Payne County

Comoll-Haskins' No. 1 Meyer, NW SE SE Sec. 17-17-6. U.R. 10-in. 1,000 ft.

Helmerich & Payne's No. 1 Kramer, NW NW SE Sec. 24-17-1e. Vla. 4,931 ft.; Wlx. 5,014 ft.; cd. 5,015-20 ft.; 2nd Wlx. 5,145 ft.; T.D. 5,157 ft.; P.B. 4,855 ft.; perf.; H.F.W.; D.&A.

Texas Co.'s No. 1 Burroughs, C E½ NE NW Sec. 11-17-1. Wlx. 4,925 ft.; pay 4,942-45 ft., T.D.; F. 233 B.O. in 8 hrs.; S.I.

Seminole County

Margay Oil Co.'s No. 1 Reed, NW NE NE Sec. 12-6-6. Vla. 3,930 ft.; dolo. 4,020 ft.; T.D. 4,105 ft.; N.S.; D.&A.

Tom Nix' No. 2 Warren. C E½ NE SE SE Sec. 4-6-8. T.D. 930 ft.; D.&A.

Pottawatomie County

Alma Oil Co.'s No. 1 Harrington, NW SE NW Sec. 24-9-4. Drlg. 3,035 ft.

J. W. Meazel's No. 1 Billington, SE NE NE Sec. 26-9-4. Drlg. 3,960 ft.

Washita County

Continental Oil Co.'s No. 1 School ld., C NE Sec. 16-8-16w. Gr. wsh. 3,005 ft.; drlg. 4,910 ft.

SOUTHERN OKLAHOMA

Carter County

W. F. Turner's No. 1 Smith, NE SW SE Sec. 16-3s-1w. S.D. 3,640 ft.

Choctaw County

Clyde Ross et al's No. 1 Hardy, SE SE NW Sec. 21-7s-15. S.D. 1,950 ft.

Jackson County

Jones & Robinson's No. 1 Neal, SW SW SW Sec. 8-1s-20w. Abd.

Jefferson County

Fred Land et al's No. 1 Barrett, NE SE SE Sec. 14-2s-6w. Sd. 1,852 ft., S.O.; D. P. stk. at 1,100 ft.; T.D. 1,890 ft.; S.D

Marshall County

Johnson et al's No. 1 Godfrey, SW SE NE Sec. 14-6s-6e. Vla. 2,627 ft.; S.S.O.; T.D. 4,582 ft.; to perf.

May Oil Corp.'s No. 1 Sacren, SW NE SW Sec. 17-5-5. Sd. and S.G. 1,023-27 ft.; blh. sh. 1,033-37 ft.; drlg. 1,120 ft.

Pure Oil's No. 1 Little, W½ NE SE Sec. 28-5s-7e. At 5,103 ft.; est. 30 B.O.P.H. and 3,000,000 cu. ft. gas; cd. 5,555-66 ft.; 50-ft. sd. and stain; T.D. 5,640 ft.; F. 150 B.O. in 1 hr.

Murray County

C. P. Williams' No. 1 fee, NE NE SE Sec. 22-1n-4. Arb. 650 ft.; S.D. 950 ft. D.&A.

Stephens County

Edwin Bristow's No. 1 Damron, SE NW SW Sec. 25-2s-6w. T.D. 1,545 ft.; drld. plug and S.D.

Jackson's No. 1 Marshall, SE NE NE Sec. 1-1s-6w. Drlg. 1,050 ft.

Tillman County

F. W. Johnson's No. 1 Longacre, NE NE SE Sec. 32-2s-17w. T.D. 3,268 ft.; F. 175 B.O.P.D.

KANSAS

Week Ended April 13 (Descriptions are East unless marked otherwise)

Barton County

Geo. Hinkle's No. 1 Kroutwurst, C N½ NE SE Sec. 34-16-11w. Tpka. 2,750 ft.; Lans. 3,119 ft.; Arb. 3,394 ft.; 1,500 ft. O.I.H. at T.D. 3,402 ft.; P. 1½ B.O. P.H.

McMorrow's No. 1 Tonkin, SW SW SW Sec. 4-20-12w. Drlg. 900 ft.

Butler County

C. E. Timm's No. 1 Kelley (O.W.D.D.), SE NW SW Sec. 20-27-4. O.T.D. 2,660 ft.; Arb. 3,024 ft.; T.D. 3,040 ft.; abd.

Cloud County

E. T. Lindsay et al's No. 1 LeBlanc, C S½ SW NW Sec. 35-6-1w. R.R.

Cowley County

Atlantic and Sinclair's No. 1 Smith, SE SE NW Sec. 33-33-4. Tpka. 1,365 ft.; drlg. 2,785 ft.

C. L. Carlock's No. 1 Starkey, CSL SE SE Sec. 21-30-7. Drlg. 1,390 ft.

Hartman & Brewer's No. 1 Falkingham CNL NW SE Sec. 22-30-4. Drlg. 1,668 ft.

McKnab's No. 1 Coats, NE NE NE Sec. 18-34-4. S.D. 45 ft.

McKnab's No. 1 Sherwood, NE SE SW Sec. 4-35-5. Drlg. 1,690 ft.

McKnab's No. 1 Snyder, C W½ NW NW Sec. 15-34-3. Drlg. 580 ft.

Markey & Mission's No. 1-A Hunt, SW SW NE Sec. 16-34-5. T.D. 1,756 ft.; killed gas; U.R. 1,756 ft.

Morgan Pet. Co.'s No. 1 Dunn, CSL SW NE Sec. 2-35-5. 10-in. 40 ft.

J. W. Murfin's No. 1 Jarvis, N½ SW NE Sec. 19-31-5. Loc.

E. B. Shawver's No. 1-B Widener, C S½ SE NW Sec. 11-30-4. W.O.C. 2,710 ft.

Dickinson County

Midland Oil Co.'s No. 1 Haines, SE SW SW Sec. 23-16-4. Drlg. 1,000 ft.

Ellis County

Central Pet. Co.'s No. 1 Lynn, NE NE SW Sec. 14-11-18w. W.O.C. 1,165 ft.

Dickey Oil's No. 1 Stone, N½ NE SW Sec. 4-11-17w. 15-in. 58 ft.

Ellsworth County

Pryor & Lockhart's No. 1 Stratman, C W½ NW NW Sec. 1-17-10w. Drlg. 255 ft.

Greenwood County

Ashlock et al's No. 2-A Lindemood, NE NW SW Sec. 7-25-13. Drlg. 430 ft.

A. A. Hinze et al's No. 1 Hester, NW SW NE Sec. 1-22-12. S.D. 510 ft.

C. L. Sheedy et al's No. 1 Hook, NW SW NW Sec. 4-22-10. Miss. 2,333-69 ft., T. D.; B. 2 B.O.P.D.

Jefferson County

McLaughlin Sons, Inc.'s No. 1 McLaughlin, SW NE NW Sec. 4-10-20. T.D. 1,915 ft.; whpstk. 1,858 ft.; P.B. 1,519 ft. gas leak; mch. moved away.

Johnson County

McCain et al's No. 1 Down, CEL NW SE Sec. 34-12-22. S.D. 1,342 ft.

Leavenworth County

Wamhoff & Lebsack's No. 1 Moduska, C SE NE Sec. 36-8-20. Drlg. 335 ft.

McPherson County

Aladdin Pet. Co.'s No. 1 Bitikofer, CNL NE NW Sec. 1-20-1w. Lans. 2,315 ft.; Miss. 2,885 ft.; rng. csg.

C. L. Carlock's No. 1 Hover, C SE NW Sec. 6-21-1w. Drlg. 2,880 ft.

H. & M. Drlg. Co.'s No. 1 Swenson, S½ SW NE Sec. 9-18-4w. Drlg. 900 ft.

Marshall County

Frankfort Drlg. Co.'s No. 1 Shearer, NW C Sec. 29-4-9 (O.W.D.D.). O.T.D. 822 ft.; S.O.; C.O.; S.D.O.

Marion County

Harrington & Lorleaux's No. 1 Belton SE SE NE Sec. 30-17-4. Drlg. 1,850 ft.

H. H. Royer's No. 1 Kroch, NE NE NW Sec. 28-18-4. Miss. 2,431-52 ft., T.D.; H.F.W.; D.&A.

Reno County

Dutton et al's No. 1 Green, SE SE SE Sec. 8-23-4w. Drlg. 2,150 ft.

Rice County

F. G. Holl's No. 1 Wilkens, NW NW NE Sec. 28-18-6w. Drlg. 350 ft.

Rooks County

Lario O. & G. Co.'s No. 1 Morrison, C S½ SW NE Sec. 32-10-17w. Drlg. 1,440 ft.

Seaney & Clampitt's No. 1 Morrison, CSL SW NE Sec. 32-10-17w. Loc.

Russell County

I. W. Murfin et al's No. 1 St. Aubyan, CSL SW SE Sec. 1-15-15w. Tpks. 2,710 ft.; Lans. 3,000 ft.; drlg. 3,077 ft.

Simpson Oil's No. 1 Deines, CWL NW SW Sec. 33-14-14w. Drlg. 305 ft.

Sedgwick County

G. A. Fuller's No. 1 Stilt, CSL SE NE Sec. 21-27-1w. S.S.O. 2,678 ft.; incr. at 2,798-2,806 ft.; load 100 B.O. and P. 250 B.O. in 33 hrs.; cmtg. 8-in. 2,792 ft.

Schermerhorn Oil Co.'s No. 1 Sanders, NE NW SE Sec. 2-25-2. Drlg. 865 ft.

Sunray Oil Co.'s No. 1-A McMillan, CWL NW NW Sec. 14-29-2w. Miss. 3,564 ft.; D.S.T. 3,575 ft. and rec. S.O. and mud; Arb. 4,030-55 ft., T.D.; P.B. 3,590 ft. at 3,570 ft. S. 11 B.O. and 30 B.W. in 8 hrs.; S. wtr.

Trego County

J. E. Trigg's No. 1 Rasek, C NE NE Sec. 13-12-23w. Lans. 3,683 ft.; stain 3,685-3,703 ft.; drlg. 3,710 ft.

Woodson County

Cooper's No. 1 Sowder, SE SE NW Sec. 31-25-14. Drlg. 457 ft.

MISSOURI

Adair County

Eddington et al's No. 1-A Clark, NE NE SE Sec. 8-63-14w. Hunton 739 ft., reduced hole to 8¼ in.; drlg. ahead.

Eddington-McAlpin's No. 1 Johnson-Capps, SW SW Sec. 31-64-15w. Drlg. below 525 ft. in Miss. lime.

Clay County

Ben I. Hall's No. 1 Masterson, C S½ SE Sec. 35-52-32w. Spd.

DeKalb County

E. H. Lawhon's No. 1 Gottschall, C SE SE Sec. 18-59-32w. Drlg. 410 ft.

Holt County

Brin & Nathan's No. 1 Decker, C NW NW Sec. 1-61-38w. T.D. 1,030 ft.; S.D. for csg.

Macon County

Ray Dorris' No. 1 Jones, NW NW Sec. 16-58-17w. Loc.

Platte County

Roach-Vincent et al's No. 1 Dillingham, C NE SW Sec. 16-53-34w. T.D. 1,055 ft.; S.D.

Mercer County

Geo. Moore's No. 1 Moss, NW SW SE Sec. 30-65n-24w. Drlg. 1,900 ft.

Schuyler County

T. E. Baldwin's No. 2 Johnson, SW NE NE Sec. 21-65-15w. M.I. mch.

Rogers & Morrow's No. 1 Seamster, Sec. 6-65-13w. T.D. 1,400 ft.; D.&A.

ARIZONA

Maricopa County

Sam F. Reaves' No. 1 King, SW SE Sec. 33-1n-4w. Set csg. 1,800 ft.; pipe stk.

Peoples O & G. Co.'s No. 1 Gardner, SE Sec. 2-1n-3e. S.D. 1,180 ft.

Yavapai County

Ari-Copa Drlg. & Mining Co.'s No. 1 Puntenney, SW¼ Sec. 27-18n-2w. S.D. 460 ft.

Chino Valley Oil Dev. Co.'s No. 1 State, Sec. 20-18n-2w. S.D. 1,140 ft.

Yuma County

Yuma Valley O. & G. Co.'s No. 1 Musgrove, N½ SW NW NE Sec. 11-11s-25w. Cd. 3,320-30 ft.; good S.O.&G.; R.U. pmp. 4,462 ft.

NEBRASKA

Richardson County

Forest City Basin Synd.'s No. 1 Windle, SE NE SE Sec. 3-1n-15e. Pits.

Pawnee Royalty Co.'s No. 1 Boice, CSL N½ NE NE Sec. 18-1n-16e. O.W.D.D.; drlg 2,285 ft.

Pawnee Royalty Co.'s No. 1 Bucholz, C NW SW Sec. 17-1n-16e. Loc.

Uhri Oil Co.'s No. 1 Ogle, NE NW SE Sec. 9-1n-14e. M.I.M.

Uhri Oil Co.'s No. 1 Stauffer, SW SW NE Sec. 22-1n-13e. T.D. 550 ft.; preparing to resume.

ARKANSAS

Calhoun County

British American Oil Co.'s No. 1 Freeman Smith Lbr. Co., C SE NE Sec. 17-15-13, T. Bknr. 4,360 ft.; por. L. 4,430 ft.; S.O.; D.S.T. 4,425-48 ft.; ⅜-in. ck. T. and ¼-in. ck. bttm.; rec. 150 ft. slightly brksh. wtr. and drlg. mud in 13 min.; T.D. 4,474 ft.

Clark County

J. H. Coker and J. P. Grieves' No. 1 C. McClellan, 330 ft. NW cor. NW SE Sec. 11-20-21. Drlg. rk. 1,134 ft.

W. S. King's No. 1 N. Ross, 640 ft. S. 359 ft. W, NE cor. S½ SW Sec. 3-10-21. T.D. 2,158 ft.; S.D.

W. P. Wilson's No. 1 Hamilton & Mathews, 50 ft. W, C SE NE Sec. 31-10s-20w. O.W.W.O.; fsg. 1,622 ft.

Columbia County

Ark. Fuel Oil Co.'s No. 3-B King, 330 ft. S. 665 ft. W, NE cor. SE NW Sec. 21-17-20. Set 9⅝-in. csg. 2,190 ft.; drlg. rd. sdy. sh. 7,375 ft.

F. M. Hood's No. 1 A. C. Warren, C NE SE Sec. 9-16-22. Set 9⅝-in. csg. 2,123 ft.; T.D. 7,314 ft.; rng. csg.

Hassie Hunt's No. 2 McWilliams, NE NE Sec. 16-18-19. 9⅝-in. csg. 2,109 ft.; set 5½-in. csg. 8,250 ft.; would not flw.; rkd. with gas and attempted acd; would not take acd.; drld. to 8,276 ft., tstd. S.W.; P.B.; 8,268 ft.; attempted to acd.; would not take acd.; M.I. smaller rig.

Hunt Oil Co.'s No. 1 E. Garner, C N½ NE NE Sec. 25-17-20. and N½ NW NW Sec. 30-17-19. R.U.

McAlester Fuel Oil Co.'s No. 1 H. Sayers unit, C NE NW Sec. 15-18-22. Set 9⅝-in. csg. 4,060 ft.; T.D. 8,876 ft.; T. por. 8,802 ft.; ran elec. log.

J. K. Mahoney's No. 3 Emma Riley, C SE SW Sec. 11-18-19. Set 16-in. csg. 138 ft.; drlg. rd.&gr. sh. 5,206 ft.

Standard Oil Co. of La.'s No. 1-B Gunnels et al, 560 ft. N, 660 ft. E, SW cor. NW NW Sec. 20-17-19. T.D. 7,569 ft.; rng. elec. survey.

Tide Water Asso. Oil Co. and Seaboard Oil Corp.'s No. 1 W. T. Beene, C NE NW Sec. 14-18-19. Set 9⅝-in. csg. 2,596 ft.; drlg. rd.&gr. sh. 6,287 ft.

Tide Water Asso. Oil Co. and Seaboard Oil Corp.'s No. 2 J. T. Beene, C NE NW Sec. 15-18-19. Set 13⅜-in. csg. 132 ft.; will not flow; S.I.; T. por. 8,234 ft.; T.D. 8,247 ft.; rocked with gas; would not flow; acd. with 1,000 gal.; flwd. 134 B.O. and 58 bbl. S.W. daily; 7/64-in. ck.; flwd. 134 B.O.P.D. and 58 bbl. S.W. per day; 7/64-in. ck. on flow valves.

Tide Water Asso. Oil Co. and Seaboard Oil Corp.'s No. 1 C. H. Murphy et al, C SW NE Sec. 14-18-19. Set 9⅝-in. csg. 2,523 ft.; drlg. 5,790 ft.

G. H. Vaughn et al's No. 1 Mahoney, C NW NW Sec. 13-18-19. Set 9⅝-in. csg. 2,518 ft.; drlg. rd. sdy. sh. 7,309 ft.

Faulkner County

Cato Oil Co., Inc.'s No. 1 R. R. Harrell, 330 ft. SE cor. SE SW Sec. 35-4n-12w. T.D. 2,438 ft.; U.R. csg. and set 7-in. csg. 2,370 ft.; bailing to test.

Lafayette County

Atlantic Ref. Co.'s No. 1 Bodcaw Lbr. Co., Sec. 29-17-23. Set 16-in. csg. 341 ft.; rng. 9⅝-in. csg. 4,243 ft.

A. H. Boswell's No. 1 C. H. Ellis, 175 ft. NW cor. SW NE Sec. 19-16-23. Cd. oil sd. (Tokio) 2,297-2,309 ft.

Lonoke County

Lunnon Howell & Ford's No. 1 City of Cabot, C NE Lot 1, Blk. 6, Sec. 18-4n 9w. Set 4⅝-in. csg. 878 ft.; T.D. 900 ft.; reported S.O.; prep. test.

J. F. Russell's No. 1 J. T. Gunter, 440 ft. N, 577 ft. W, SE cor. Sec. 17-5n-10w. Drld. sd. S.S.O. 2,231-45 ft.; S.D. 2,254 ft.

Miller County

Standard Oil Co. of La.'s No. 1 W. P. Sturgis, 660 ft. S and W. C Sec. 1-17-27. Set 9⅝-in. csg. 2,497 ft.; L. 7,182 ft.

Nevada County

Velma Oil Co.'s No. 1 T. M. Bemis, 330 ft. NW cor. NW NE Sec. 23-10s-22w. Set 10-in. csg. 66 ft.; S.D. 68 ft.

Ouachita County

Liberty Oil Co.'s No. 1 P. T. Hildebrand, 660 ft. S, 330 ft. W, NE cor. SE¼ Sec. 28-15-15. O.W.W.O.; O.T.D. 4,934 ft.; reperf. csg. 2,600-25 ft.; tstd. S.W. and recmtd. perf.; arng. reperf.; set cmt. plug 2,680 ft.; ripped csg. 2,598-2,602 ft.; tstd. S.S.O.; perf. csg. 2,598-2,625 ft.; T.D. 2,680 ft.; pmpg. est. 100 B.P. D. S.W.; arng. P.B. to Nac. sd.

Pulaski County

Coker Oil Corp.'s No. 1 Huffman, 330 ft. NW cor. NW SW SW Sec. 29-4n-11w. T.D. 1,763 ft.; W.O.

Saline County

A. W. Givens' No. 1 Williams, 375 ft. S, 420 ft. E, NW cor. NE NE Sec. 18-3s-15w. S.D. sh. 494 ft.

Sevier County

R. A. McArthur's No. 1 Bell est., 20 ft. SE cor. SE SW Sec. 29-9s-32w. S.D. 732 ft.

St. Francis County

D. T. Hargraves et al's No. 1 J. T. Wellford, 400 ft. N, 300 ft. W, SE cor. NE NE Sec. 29-4n-1w. R.U.

Union County—Schuler

Delta Drlg. Co.'s No. 1 J. C. Morgan, 330 ft. S and W, C Sec. 13-18-18. Set 9⅝-in. csg. 1,537 ft.; set 5½-in. csg. 7,588 ft.; perf. 7,558-70 ft.; set tbg. on pkr. 7,530 ft.; tstg. 7,593 ft.

Union County—Other

Berg & Laney's No. 1 Cutrer, 150 ft. N. 660 ft. W, SE cor. NW SW Sec. 21-17-14. Cd. 2,727-28 ft.; rec. 7-in. por. sd.; cd. 2,728-35 ft.; rec. 7½ ft. soft por. sd., salty taste; drlg. by fish 350 ft.; T.D. 3,370 ft.; set 5½-in. csg. 2,771 ft.; perf. 2,702-05 ft.; bailed down 1,000 ft. and tstd. S.W.; recmtd. perf. 2,601-03 ft. and reperf. 2,572-74 ft.; bailed dry; M.I. D.S. to drill out cmt.

Fohs Oil Co.'s No. 1 Grace, C SE SW SE Sec. 31-17-14. Junk in hole 2,100 ft.; P.B. 800 ft.; lost returns 2,187 ft.; arng. res. drlg. 2,187 ft.

Kinard Curtis et al's No. 1 J. A. Kelly, 330 ft. SW cor. SE SW SW Sec. 9-17-14. Set 10-in. csg. 203 ft.; Graves sd. 2,658-64 ft.; showed slight sat.; D.S.T. 2,651-64 ft. open 4 min. rec. est. 500,000 cu. ft. gas and 120 ft. drlg. fluid; ¼-in. B.H. ck.; B.H.P. 950 lb.; arng. set csg. 2,664 ft.

McCresslen Oil Co.'s No. 3 J. C. Parker, 250 ft. N. 400 ft. E. SW cor. Sec. 3-18-13. Set 7-in. csg. 3,556 ft.; T.D. 3,596 ft.

LOUISIANA

NORTH LOUISIANA

Bienville Parish

Ark. La. Gas Co.'s No. 1-A Carter, 1,372 ft. N, 90 ft. E, SW cor. Sec. 12-16-10. R.U.

Bossier Parish

Premier Dev. Co.'s No. 1 Mehaffey, 150 ft. S, 1,980 ft. W, NE cor. Sec. 27-19-11. Set 12½-in. csg. 155 ft.; W.O.C.

Triangle Drlg. Co.'s No. 2 Chatman, 1,977 ft. E, 1,995 ft. S, NW cor. Sec. 18-17-11. Set 5½-in. csg. 3,120 ft.; reset csg.; W.O.C.

Triangle Drlg. Co.'s No. 4-C Skannal, 332 ft. S, 233 ft. W, NE cor. Sec. 13-17-12. Drlg. 1,000 ft.

Union Prod. Co.'s No. 2-B Thigpen & Herold, 1,245 ft. S, 1,388 ft. E. NW cor. Sec. 19-17-11. T.D. 5,215 ft.; set csg. 5,167 ft.; W.O.C.

Caddo Parish

C. J. Brown's No. 1 Muslow, Sec. 5-20-15. Set 7-in. csg. 1,408 ft.; acd. and tstg.; T.D. 1,565 ft.

F. W. Burford's No. 1 Wallis, 660 ft. SW cor. NW SW Sec. 5-23-15. Drlg. anhy. &L. 5,753 ft.

L. M. Calhoun, Jr., Tr.'s No. 1-A Chesire, Sec. 32-21-15. Set 6-in. 1,382 ft.; W.O.C.

D. T. Cauble's No. 1 Darnell, Sec. 17-22-16. Set 10-in. csg. 80 ft.; T.D. 2,800 ft.; W.O.

Cooper Oil Co.'s No. 2-B Stiles, Sec. 33-21-16. Drlg. 918 ft.

Davidson & Brown's No. 1 Wells, Sec. 10-21-15. Set 8-in. csg. 1,597 ft.; acd. with 4,000 gal.; pmpd.; S.O. 1,789 ft.; T.D. 3,000 ft.; set 5½-in. csg.; acd. with 3,000 gal.; tstg.

H. Ferguson's No. 1 Single Terry, Sec. 10-20-16. Drlg. sh. 832 ft.

L. O. Gandy's No. 1 Whatley, Sec. 12-20-16. R.U.

J. P. Griffin's Sec. 26-21-16. R.U.

Kendricks & Bashaw's No. 1 Huckaby-Parker, Sec. 14-22-16. T.D. 1,616 ft. S.D.

L. & A. Oil Co.'s No. 4 Burton, Sec. 7-20-15. Set 10-in. csg. 50 ft.

Magnolia Pet. Co.'s No. 33 Dillon, Sec. 24-21-15. R.U.

R. Manziel et al's No. 2 City of Shreveport, Sec. 35-18-14. Set 9-in. csg. 1,220 ft.; drlg. L.&sh. 5,093 ft.

R. L. Milam's No. 1 Waldron, Sec. 12-20-16. Drlg. sh. 525 ft.

Samuel Murray's No. 1 Butler Howard, Sec. 12-20-16. Set 10-in. csg. 50 ft.

H. Philip's (Baker & Wissman) No. 1 Muslow, Sec. 31-21-15. Set 10-in. csg. 50 ft.; drlg. 1,165 ft.

Providence Oil Co.'s No. 6 Bostwick, Sec. 13-22-16. Set 7-in. csg. 2,624 ft.; W.O.C.

Jack Terrell's No. 1 Welch, Sec. 3-20-16. Set 4½-in. csg. 1,434 ft.; T.D. 1,540 ft.

Texas Co.'s No. 6 Hicks-Payne, Sec. 21-21-15. Set 6⅝-in. csg. 1,504 ft.; will acd.; T.D. 1,687 ft.

W. & W. Oil Co.'s No. 5 Ark. Fuel, Sec. 12-20-16. Set 6⅝-in. csg. 1,390 ft.; acdg. 1,546 ft.

Sloan Wells' No. 1 Stiles, 3,734 ft. N. 1,706 ft. E. SW cor. Sec. 32-21-16. Set 10-in. csg. 340 ft.; cor. T.D. 1,073 ft.; cst 6⅝-in. csg. 1,070 ft.; S.D.

Stanolind O. & G. Co.'s No. 1 Head, Sec. 26-21-15. Set 8⅝-in. csg. 91 ft.; drlg. sh. 562 ft.

E. A. Stiller's No. 2 Stiles, Sec. 28-21-16. Drlg. 900 ft.

J. G. Strahan's No. 3-A Hart, Sec. 29-21-16. M.I.M.

J. G. Strahan's No. 2-B Stiles, Sec. 32-21-16. Drlg. sh. 650 ft.

Texas Co.'s No. 3 Atkins fee, Sec. 7-20-15, Set 6⅝-in. csg. 1,361 ft.

Texas Co.'s No. 22-B Noel, Sec. 14-21-15. Drlg. 685 ft.

G. Whitley's No. 1 Wall, Sec. 12-20-16. Set 10-in. csg. 40 ft.; set 7-in. csg. 1,391 ft.

Ivan W. Wright's No. 1 Moore, Sec. 1-20-16. Set 10-in. csg. 40 ft.; T.D. 1,345 ft.; S.D.; will set csg.

Caldwell Parish

Arkansas Fuel Oil Co.'s No. 1 La. Cent. Lbr. Co., C NW SW Sec. 31-12-3e. O. W.D.D.; O.T.D. 7,528 ft.; took side-wall cores 2,200-3,600 ft.; set 5½-in. csg. 3,653 ft.; perf. 3,540-45 ft.; D.S.T. mud and S.W.; perf. 3,315-20 ft.; arng. test.

Catahoula Parish

Continental Oil Co.'s No. 1 Tensas, C N½ SW SW Sec. 12-9-7e. Set 10¾-in. csg. 1,120 ft.; drlg. 2,903 ft.

Claiborne Parish

L. E. Ozley's No. 1 fee, 1,220 ft. N, 300 ft. W, SE cor. Sec. 32-20-5. Drlg. sh.& anhy. 4,575 ft.

Tiki Expl. Co.'s No. 1 J. L. Moss, NE SE Sec. 11-22-8. Set 10¾-in. csg. 735 ft.; drlg. sh. 4,789 ft.

De Soto Parish

Dewey Juan's No. 1 Frost Lbr. Ind., 600 ft. SE cor. SW¼ Sec. 14-22-3e. T. D. 2,949 ft.; bailed down 2,300 ft.; S. S.O.; tstd. S.S.O.&S.W.; cd. to 2,938 ft. (cor.) and S.D. 3,255 ft.

Watts O. & G. Co.'s No. 1 Frank Gro. Co., 338 ft. S, 450 ft. W, NE cor. NW Sec. 35-12-11. Br. sd. 2,503-2,634 ft.; set 6-in. csg. 2,503 ft.; T.D. 2,634 ft.; ran lnr.; bttm. 320 ft.; perf.

Grant Parish

R. D. Bevil, Jr.'s No. 1 Swope est., 150 ft. N, 270 ft. W, SE cor. NE SE Sec. 18-9n-1e. Set 10-in. csg. 62 ft.; rng. csg. 1,593 ft.

J. E. Granstaff's No. 2 Morrison, 2,100 ft. S, 400 ft. W, NE cor. NW SW Sec. 10-9n-1e. Set 10-in. csg. 41 ft.; drlg. ahead.

John Pundt's No. 1 Reed est., 805 ft. S, 429 ft. W, NE cor. NW SW Sec. 10-7n-3w. Set 16-in. csg. 182 ft.; T.D. 1,447 ft.; S.D. rig repair.

La Salle Parish

H. L. Hunt and Ark. Fuel Oil Co.'s No. 1 Goodpine Lbr. Co., C NW NW Sec. 18-10n-3e. T.D. 8,997 ft.; P.B. 4,863 ft.; set 5½-in. csg.; perf. 2,399-2,402 ft.; tstd. 8 B.P.H.; 27/64-in. ck.; 15% wtr.; flwd. 15 B.P.H. 99% wtr.; sqzd. and reperf. 2,388-90 ft.; tstd. wtr.; sqzd. and tstg. Olla zone.

E. F. Neely's No. 1 Lizendy, 330 ft. NW cor. NE NE Sec. 19-10-3. R.U.

Placid Oil Co.'s No. 10 La. Cent. Lbr. Co., C NW SW Sec. 7-10n-3e. Took side-wall cores 3,880 ft.; set csg. 2,650 ft.

Placid Oil Co.'s No. 11 La. Cent. Lbr. Co., C SE NE Sec. 13-10-2e. T.D. 2,100 ft.; pulled-in drk. being rebuilt.

Fred Stovall, Tr.'s No. 1 Russell, 200 ft. NW cor. SE SE Sec. 25-10-1e. Loc.

Morehouse Parish

Southern Carbon Co.'s No. 29 Tensas, Sec. 34-22-4. Set 8-in. csg. 752 ft.

Natchitoches Parish

J. E. Watts' No. 1 Tanner est., 330 ft. SW cor. NW¼ Sec. 18-10-10. Set 10-in. csg. 60 ft.; W.O.C.

Sabine Parish

A. R. Chestnut's No. 1 Logan, 330 ft. SW cor. NW NW Sec. 26-10-13. Set 7-in. csg. 1,885 ft.

Odell Henson's No. 1 Frost Lbr. Ind., 660 ft. SE cor. Sec. 22-9-13. Reported S.O. 3,146-48 ft.; set 6-in. csg. 3,115 ft.; tstd. S.O. and S.W. 3,148 ft.; dpnd. and tstd. S.O. and S.W. 3,196 ft.; drlg. hd. L. 3,226 ft.

J. T. Oglesby's No. 2 Sabine, 330 ft. SE cor. NW SE Sec. 5-7-13. T.D. 2,594 ft.; set 6-in. csg. 2,197 ft.; tstd. S.W. and P.B. 2,594 ft.

Geo. L. Pace's No. 4 Logan Oil Co., 390 ft. S. 300 ft. E, NW cor. SW Sec. 26-10-13. Set 7-in. csg. 1,981 ft.; W.O.C.

Union Parish

Memphis Nat. Gas Co.'s No. 6 J. B. Lankford, 1,980 ft. S. 660 ft. W. NE cor. Sec. 3-21-3. Set 6-in. csg. 2,153 ft.

Memphis Nat. Gas Co.'s No. 7 Tensas, Sec. 2-21-3. Set 12½-in. csg. 158 ft.; W.O.C.

Webster Parish

Hassie Hunt's No. 1 Cox (formerly Woodley Pet. Co.), 460 ft. N, 660 ft. E, C Sec. 22-21-10. O.W.W.O.; O.T.D. 4,676 ft.; drlg. sh. 5,925 ft.

Hunt Oil Co.'s No. 1 Robt. Scott, C SE SE Sec. 19-21-9. Drlg. L.&sh. 5,280 ft.

Midstates Oil Corp.'s No. 1 Brenner-Beamsley unit, 100 ft. SE cor. SW SE Sec. 20-21-10. Set 9⅝-in. csg. 5,017 ft.; drlg. sh.&L. 6,513 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co.'s No. 1 Boudoin, Sec. 64-12s-3e. 13⅜-in. csg. 1,776 ft.; drlg. sh. 9,567 ft.

Anse La Butte—St. Martin Parish

Glassell & Glassell's No. 2 Breaux, Sec. 118-9s-5e. T.S. 5,004 ft.; T.D. 5,047 ft.; abd.

Glassell & Glassell's No. 1 Moresi, Sec. 121-9s-5e. T. salt 5,825 ft.; T.D. 5,839 ft.; 6-in. csg. 4,835 ft.

Bancroft—Beauregard Parish

Republic Prod. Co.'s No. 17 Columbia

Ld. & Tmbr. Co., Sec. 16-6s-13w. Drlg. sh. 7,526 ft.

Barataria—Jefferson Parish

California Oil Co.'s No. 1 Danciger-State, Sec. 2-16s-23e. Loc.
California Oil Co.'s No. 1 State-Bayou Twp. 16-23e. 10¾-in. csg. 2,002 ft.; T.D. 8,283 ft.; 7-in. csg. 8,278 ft.; tstg.
California Oil Co.'s No. 1 Zeringue Community, Sec. 2-16s-23e. T.D. 8,275 ft., S.W. sd.; T. sd. 8,250 ft.; sdtrkd. 4,403 ft.; T.D. 8,329 ft.; perf. csg. 8,271-79 ft.
Carter, Perrin & Brian's No. 1 Ruttle-Wiseman, Sec. 2-16s-23e. T.D. 9,790 ft.
Geo. Conover's No. 1 Conover Community, Sec. 22-15s-23e. Loc.
Fohs Oil Co.'s No. 1 Conzelman, Sec. 22 15s-23e. Loc.

Bateman Lake—St. Mary Parish

Texas Co.'s No. 3 Wax Bayou, Sec. 21 16s-12e. 7-in. csg. 10,984 ft.; T.D. 11,127 ft.; rec. 275 ft. of oil 10,879-10,900 ft.; D.S. stk.; fsg.

Baton Rouge—East Baton Rouge Parish

Guaranty Oil Co.'s No. 2 Morgan, Sec 65-7s-1w. Sdtrkd.; T.D. 6,536 ft.
Wm. Helis' No. 3-C Duplantier, Sec. 70-7s-1w. T.D. 6,497 ft.; 7-in. csg. 6,484 ft.; I.P. 200 B.P.D.; 10/64-in. ck.
Wm. Helis' No. 5-B Duplantier, Sec. 70-7s-1w. R.U.
Wm. Helis' No. 9 Nelson, Sec. 36-7s-1w. Loc.
Lisbon Iberia Oil Corp.'s No. 3 University Hills subd., Sec. 68-7s-1w. T.D. 6,509 ft.; 6-in. csg. 6,504 ft.; I.P. 252 B.P.D.; ¼-in. ck.
Sugarfield Oil Co.'s No. 3 McDonald, Sec. 46-7s-1e. T.D. 6,810 ft.; perf. csg. 6,776-84 ft.; I.P. 200 B.P.D.; 9/64-in. ck.

Bayou Blue—Iberville Parish

T. G. Markley and Crosby Drlg. Co.'s No. 1 Baiste, Sec. 74-9s-10e. R.U.
Superior Oil Co.'s No. 1 E. B. Schwing, Sec. 73-9s-10e. Spd.
Superior Oil Co.'s No. 3 Schwing Lbr. Co., Sec. 74-9s-10e. Loc.

Bayou Choctaw—Iberville Parish

Standard Oil Co. of La.'s No. 2 Cypress Sec. 28-8s-11e. 10¾-in. csg. 2,250 ft.; T.D. 8,600 ft.; fsg.

Bayou des Glaise—Iberville Parish

Humble O. & R. Co.'s No. 2-B Wilberts. Sec. 78-8s-8e. 10¾-in. csg. 2,854 ft.; drlg. L. 8,768 ft.

Bayou Mallett—Arcadia Parish

Superior Oil Co.'s No. 2 Savoy, Sec. 47-7s-1e. Loc.

Caillou Island—Terrebonne Parish

Texas Co.'s No. 64 State, Sec. 20-23s-20e T.D. 5,790 ft., salt; 7-in. csg. 5,682 ft perf. csg. 3,980-4,000 ft.; I.P. 32 B.P.D.; ¼-in. ck.
Texas Co.'s No. 65 State, Sec. 17-23s-20e T.D. 6,280 ft.; 7-in. csg. 5,674 ft.; perf. csg. 5,885-5,905 ft.; I.P. 33 B.P.D.; ¼-in. ck.
Texas Co.'s No. 66 State, Sec. 17-23s-20e. Drlg. sdy. sh. 3,667 ft.

Cameron Meadows—Cameron Parish

Magnolia Pet. Co.'s No. 27 Cameron Meadows, Sec. 21-14s-13w. T.D. 5,679 ft.; 7-in. csg. 5,752 ft.; perf. csg. 5,680-85 ft.; I.P. 317 B.P.D.; 13/64-in. ck.

Chacahoula—La Fourche Parish

Sun Oil Co.'s No. 2 Cypress, Sec. 75-15s-15e. R.U.
Sun Oil Co.'s No. 7 Dibert, Stark & Brown Cypress Co., Sec. 70-15s-15e T.D. 7,400 ft.; 7-in. csg. 7,400 ft.; perf. csg. 7,356-78 ft.; I.P. 816 B.P.D.; ¼-in. ck.
Sun Oil Co.'s No. 8 Dibert, Stark & Brown Cypress Co., Sec. 70-15s-15e. R.U.

Chalkley Field—Cameron Parish

Humble O. & R. Co.'s No. 7 K. B. Hanzen, Sec. 9-12s-6w. Drlg. sh. 8,267 ft.
Shell Oil Co., Inc.'s No. 1 Coastal Club. T.D. 9,400 ft.; fsg.
Shell Oil Co., Inc.'s No. 7-A Hanzen, Sec. 20-12s-6w. R.U.
Shell Oil Co., Inc.'s No. 1 Sweet Lake. T.D. 8,956 ft.; run 5-in. csg.

Cheneyville—Rapides Parish

Amerada Pet. Corp.'s No. 8, Sec. 53-1s-2e. T.D. 5,800 ft.; perf. csg. 5,634-64 ft.
S. W. Richardson's No. 1 Beasley, Sec. 55-1s-2e. Loc.
S. W. Richardson's No. 11 Well Co., Inc., Sec. 53-1s-2e. R.U.

Darrow—Ascension Parish

Humble O. & R. Co.'s No. 3-B Community, Sec. 47-10s-2e. Drlg. sh. 8,767 ft.
Humble O. & R. Co.'s No. 29 Community, Sec. 30-10s-2e. Loc.
Kiva Oil Co.'s No. 1 Duplessis, Sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co.'s No. 11 State, Sec. 32-21s-16e 10¾-in. csg. 1,751 ft.; T.D. 6,818 ft., salt; T. salt 6,807 ft.; P.B.; sdtrkd.; drlg. sd. 6,928 ft.
Texas Co.'s No. 24 State, Sec. 5-22s-16e. Loc.

Edgerly—Calcasieu Parish

Emerson Oil Corp.'s No. 3 Stanolind fee Sec. 28-9s-11w. Sdtrkd.; drlg. gbo. 3,484 ft.

Eola—Avoyelles Parish

Amerada Pet. Corp.'s No. 3 Avoyelles, Sec. 5-2s-3e. Drk.
Amerada Pet. Corp.'s No. 1 Sam Cerami, Sec. 6-2s-3e. Drlg. sh. 7,469 ft.
Amerada Pet. Corp.'s No. 2 Cerami, Sec. 6-2s-3e. Cg. sd. 8,500 ft.
Amerada Pet. Corp.'s No. 3 Irion, Sec. 6-2s-3e. R.U.
Amerada Pet. Corp.'s No. 1 Knoll, Sec. 6-2s-3e. T.D. 8,570 ft.; perf. csg. 8,510-68 ft.; tstg.
Hany Bass & Lake's No. 1 Ritchie Grocery, Sec. 3-1s-3e. Drlg. sh.&L. 6,815 ft.
Gulf Oil Corp.'s No. 2 Moulliere, Sec. 1-2s-2e. T.D. 8,570 ft.; W.O.C.
G. R. Kenedy's No. 1 Josie Hudson, Sec. 1-2s-2e. Drlg. sh. 7,930 ft.
Magnolia Pet. Co.'s No. 1 O. Q. Foster, Sec. 6-2s-3e. Drlg. sd.&sh. 8,546 ft.
S. W. Richardson's No. 11 Haas Inv. Co., Sec. 7-2s-3e. Drlg. sd. 8,446 ft.

Fausse Point—Iberia Parish

Sun Oil Co.'s No. 1 Planters Lbr. Co., Sec. 27-11s-8e. 10¾-in. csg. 1,424 ft.; T.D. 4,711 ft., salt; abd.
Sun Oil Co.'s No. 2 Planters Lbr. Co., Sec. 27-11s-8e. Loc.
Texas Co.'s No. 7 State, Sec. 35-11s-8e. Drlg. sh.&L. 5,421 ft.

Garden Island—Plaquemines Parish

Texas Co.'s No. 42 State, Sec. 38-23s-33e. T.D. 5,749 ft.; 7-in. csg. 5,482 ft.; perf. csg. 5,336-78 ft.; I.P. 227 B.P.D.; ¼-in. ck.
Texas Co.'s No. 43 State, Sec. 38-23s-33e. Drlg. sdy. sh. 4,936 ft.
Texas Co.'s No. 44 State, Sec. 40-23s-33e. Loc.

Gibson—Terrebonne Parish

Shell Oil Co., Inc.'s No. 8 Pelican, Sec. 35-17s-15e. T.D. 10,449 ft.

Gillis—Calcasieu Parish

Fohs Oil Co.'s No. 2-A M. P. Erwin, Sec. 14-9s-8w. T.D. 6,309 ft.; sdtrkd.; drlg. L. 5,948 ft.
Union Sulphur Co.'s No. 9 Kaufman, Sec. 7-9s-7w. Drk.
Union Sulphur Co.'s No. 3 McIver, Sec. 14-9s-8w. Loc.

Golden Meadow—La Fourche Parish

Bateman Drlg. Co.'s No. 1 Harry Louviere, Sec. 9-19s-22e. T.D. 5,560 ft.; 5½-in. csg. 5,260 ft.; perf. csg. 5,150-80 ft.; S.D.
Bennett O. & R. Co.'s No. 3 Authement, Sec. 12-19s-22e. Drlg. sh. 7,900 ft.
Bennett O. & R. Co.'s No. 1 Guilbeau, Sec. 2-19s-22e. Loc.
Bennett O. & R. Co.'s No. 2 Leo Lafont. Sec. 2-19s-22e. T.D. 2,671 ft.; I.P. 113 B.P.D.; 10/64-in. ck.
Bennett O. & R. Co.'s No. 3 Lafont, Sec. 2-19s-22e. Drlg. sh. 3,750 ft.
Bennett O. & R. Co.'s No. 1 Noel Cochenee, Sec. 2-19s-22e. Drlg. sh. 2,456 ft.
Berkshire Oil Co.'s No. 4 Maigom, Sec. 2-19s-22e. T.D. 2,679 ft.; 5½-in. csg. 2,679 ft.; I.P. 320 B.P.D.; ¼-in. ck.
Berkshire Oil Co.'s No. 14 Nicol, Sec. 9-19s-22e. T.D. 5,175 ft.; 5½-in. csg. 5,170 ft.; I.P. 408 B.P.D.; ¼-in. ck.
Brown & Woods' No. 1 Guilbeau, Sec. 2-19s-22e. R.U.
Brown & Woods' No. 1 S. Hogan, Sec. 9-19s-22e. T.D. 2,710 ft.; P.B. to 1,500 ft.; sdtrkd.; T.D. 2,672 ft.; 7-in. csg. on bttm.; perf. csg. 2,650-65 ft.; would not flow; S.D.; T.A.
M. H. Marr et al's No. 2 B. & D. unit, Sec. 17-19s-22e. Bldg. rd.
Martex Oil Corp.'s No. 1-D Rebstock, Sec. 2-19s-22e. 10¾-in. csg. 723 ft.; drlg. sh. 3,120 ft.
Martex Oil Co.'s No. 3-A Rebstock, Sec. 2-19s-22e. T.D. 2,665 ft.; 5-in. csg. 2,665 ft.; perf. csg. 2,630-62 ft.
Geo. O'Dwyer et al's No. 1 La Fourche, Sec. 21-19s-22e. Drlg. sh. 4,286 ft.
S. Rhodes' No. 1 Nickerson, Sec. 12-9s-8w. Drlg. sh. 5,520 ft.
Terouche Oil Co.'s No. 2 Cheramie, Sec. 12-19s-22e. Drk.
Texas Co.'s No. 12 Falgout Holding Co., Sec. 9-19s-22e. T.D. 5,175 ft.; 7-in. csg. 5,158 ft.
Texas Co.'s No. 12 Golden Meadow, Sec. 78-19s-21e. Drlg. 310 ft.
Texas Co.'s No. 2 L.L.&E., Golden Meadow, Sec. 78-19s-21e. T.D. 8,120 ft.; P.B. 7,205 ft.; I.P. 50 bbl.; ¼-in. ck.
Texas Co.'s No. 5 La Terre, Sec. 2-20s-21e. Loc.
Texas Co.'s No. 6 Le Terre, Sec. 1-20s-21e. Loc.
Texas Co.'s No. 7 State-Catfish, Sec. 2-20s-21e. Loc.

Grand Bay—Plaquemines Parish

Gulf Oil Corp.'s No. 7-A Grand Prairie Lv. Dist., Sec. 5-20s-19e. Loc.
Gulf Oil Corp.'s No. 8-A Grand Prairie Dist., Sec. 5-20s-19e. Loc.
Gulf Oil Corp.'s No. 4 State QQ, Sec. 5-20s-19e. T.D. 8,770 ft.; 7-in. csg. 8,770 ft.
Gulf Oil Corp.'s No. 5 State QQ, Sec. 31-19s-19e. Loc.
Texas Co.'s No. 1 State-Lookout Pass, Sec. 48-20s-18e. Drlg. sdy. L. 9,376 ft.
Texas Co.'s No. 3 State-Lookout Pass, Sec. 6-20s-19e. Loc.
Gulf Oil Corp.'s No. 1 State QQ, Sec. 6-20s-19e. T.D. 10,030 ft.; perf. csg. 9,990-10,005 ft.; I.P. 994 B.P.D.; ¼-in. ck

Grand Lake—Cameron Parish

Amerada Pet. Corp.'s No. 4 State, Twp. 13s-4w. T.D. 9,000 ft.; W.O.C.
Amerada Pet. Corp.'s No. 8 State, Twp. 13s-4w. Drive piling.
Superior Oil Co.'s No. 9 State, Twp. 13s-4w. T.D. 8,986 ft.; 5½-in. csg. 8,487 ft.; perf. csg. 8,406-8,380 ft.; I.P. 188 B.P.D.; 10/64-in. ck.

Hackberry—Cameron Parish

Hanson & Abercrombie's No. 2 Verdin, Sec. 36-12s-10w. Drlg. sh. 65 ft.
Stanolind O. & G. Co.'s No. 22 Cameron Parish, Sec. 16-12s-10w. Loc.
Stanolind O. & G. Co.'s No. 31 Gulf Ld., Sec. 25-12s-11w. R.U.
Superior Oil Co.'s No. 9 Benson Vincent, Sec. 30-12s-10w. 9⅝-in. csg. 950 ft.; T.D. 8,420 ft.; 5½-in. csg. 7,675 ft.; I.P. 600 B.P.D.; 11/64-in. ck.
Superior Oil Co.'s No. 11 State, Twp. 13s-4w. Drlg. sh. 1,510 ft.
Superior Oil Co.'s No. 10 Vincent, Sec. 30-12s-10w. Drk.
Texas Co.'s No. 29-B State, Twp. 12s-9w. T.D. 8,470 ft.; 7-in. csg. 7,032 ft.; P.B. 6,884 ft.; tstd. S.W.; abd.

Happytown—Iberville Parish

Shell Oil Co., Inc.'s No. 1 Schwing Lbr. & Shingle Co., Sec. 85-7s-3e. Drlg. sh. &L. 9,530 ft.

Horseshoe Bayou—St. Mary Parish

Texas Co.'s No. 4 State, Sec. 23-17s-9e. Drlg. sh. 6,420 ft.

Jeanerette—St. Mary Parish

Herton Oil Co.'s No. 10 Banta, Sec. 40-13s-9e. Loc.

Jefferson Island—Iberia Parish

Texas Co.'s No. 3 State, Twp. 12s-5e. T.D. 7,749 ft.; fsg.

Jennings—Acadia Parish

Glassell-Glassell's No. 8 McFarlain, Sec. 41-9s-2w. Drlg. sh.&L. 4,189 ft.
Gulf Oil Corp.'s No. 42 Arnaudet, Sec. 47-9s-2w. 7-in. csg. 7,961 ft.; T.D. 7,983 ft.; sdtrkd.; drlg. sd. 8,046 ft.
Shell Oil Co., Inc.'s No. 10 Community, Sec. 40. T.D. 7,773 ft.
Stanolind O. & G. Co.'s No. 117 Crowley O. & Min. Co., Sec. 48-9s-2w. Drlg. sh. &L. 7,054 ft.
Stricker-Pharis et al's No. 1 Gulf fee, Sec. 45-9s-2w. 16-in. csg. 60 ft.; S.D. 7,503 ft.

Lafitte—Jefferson Parish

Texas Co.'s No. 15 Lafitte, Sec. 20-17s-24e. T.D. 10,135 ft.; 7-in. csg. 10,123 ft.; perf. csg. 9,475-9,505 ft.; rec. S.W.; perf. csg. 6,515-35 ft.; rec. S.W.; perf. csg. 5,130-40 ft.; rec. 2,400 ft. oil, 1,000 ft. S.W.
Texas Co.'s No. 16 L.L.&E., Lafitte, Sec. 17-17s-24e. Loc.
Texas Co.'s No. 6-A Madison Realty Co., Sec. 17-17s-24e. Dredge canal.
Texas Co.'s No. 13 Rigolet Cooperative Fur Co., Sec. 29-17s-24e. T.D. 10,176 ft.

La Fourche Crossing—La Fourche Parish

Lisbon-Iberia Oil Co.'s No. 1 Prosper Thibodaux, Sec. 17-15s-17e. Drlg. sd.& sh. 3,030 ft.
Mikton Oil Co.'s No. 2 Martinez, Sec. 132-15s-17e. 11¾-in. csg. 2,687 ft.; T.D. 4,904 ft.; P.B. 4,700 ft.; T.D. 10,998 ft.; 5½-in. csg. 10,042 ft.; perf. csg. 10,108-20 ft.; flwg. 12 B.P.H.; ¼-in. ck.

Lake Mongoulois—St. Martin Parish

Texas Co.'s No. 8 State, Sec. 10-10s-9e. Drlg. sh. 1,426 ft.

Lake Pelto—Terrebonne Parish

Texas Co.'s No. 30 Lake Pelto, Sec. 7-23s-18e. T.D. 4,559 ft.; 7-in. csg. 4,459 ft.; perf. csg. 4,400-28 ft.
Texas Co.'s No. 31 State, Sec. 8-23s-18e. Loc.

La Place—St. James Parish

Pan American Prod. Co.'s No. 1 Godchaux Sugars, Sec. 97-11s-7e. 10¾-in. csg. 2,314 ft.; T.D. 9,042 ft.; 7-in. csg. 8,970 ft.

Leeville—La Fourche Parish

Texas Co.'s No. 73 Leeville, Sec. 27-21s-22e. Loc.

New Iberia—Iberia Parish

Acadian Prod. Co.'s No. 4 E. T. Weeks, Sec. 51-12s-7e. Loc.
Wm. Helis' No. 1-A Bullock, Sec. 25-12s-7e. T.D. 6,066 ft.; 7-in. csg. 6,011 ft.; I.P. 650 B.P.D.; ¼-in. ck.
Wm. Helis' No. 10 Schwing, Sec. 56-12s-7e. Drlg. sdy. sh. 8,388 ft.
Texas Co.'s No. 2 Bryant, Sec. 25-12s-7e. R.U.
Texas Co.'s No. 7 Bryant, Sec. 25-12s-7e R.U.
Texas Co.'s No. 17 Duhe, Sec. 26-12s-7e. Drlg. sh. 4,108 ft.
Texas Co.'s No. 2 Hebert, Sec. 25-12s-7e. 10¾-in. csg. 1,035 ft.; T.D. 8,535 ft.; fsg.
Texas Co.'s No. 2 Smith, Sec. 71-12s-7e Drlg. sh.&L. 9,392 ft.

North Crowley—Acadia Parish

Humble O. & R. Co.'s No. 8 Ohlenforst, Sec. 34-8s-1e. T.D. 8,810 ft.; P.B. 8,681 ft.; W.O.C.
Humble O. & R. Co.'s No. 5 Staken, Sec. 33-8s-1e. Drk.

North Elton—Calcasieu Parish

W. T. Burton's No. 1 Calcasieu Natl. Bnk., Sec. 23-6s-3w. Loc.

Paradis—St. Charles Parish

Jolly Pet. Co.'s No. 1 Matthews Oliveira, Sec. 4-14s-20e. Cg. sh. 10,336 ft.
Texas Co.'s No. 4 L.L.&E. Paradis, Sec. 6-14s-20e. R.U.
Texas Co.'s No. 1 Sunset Realty & Planting Co., Sec. 38-14s-20e. Drlg. sh. 426 ft.

Plumb Bob—St. Martin Parish

Texas Co.'s No. 13 St. Martin Ld. Co., Sec. 21-8s-7e. Drlg. sh.&L. 8,051 ft.
Texas Co.'s No. 14 St. Martin, Sec. 21-8s-7e. Loc.

Port Barre—St. Landry Parish

McDannald Oil Co.'s No. 1 Sibille, Sec. 7-6s-6e. Cg. 5,712 ft.
McDannald Oil Co.'s No. 2 Sibille, Sec. 7-6s-6e. Loc.
Pan American Prod. Co.'s No. 6 Garland, Sec. 4-6s-5e. R.U.
Y. D. Spill's No. 1 Gaudet, Sec. 4-6s-5e. S.D. 4,700 ft.
Westgate-Greenland Oil Co.'s No. 1 Jeansenne, Sec. 20-6s-5e. 7-in. csg. 5,286 ft.; perf. csg.; T.D. 5,314 ft.; S.D.

Potash—Plaquemines Parish

Humble O. & R. Co.'s No. 43 Orleans Lv Bd., Sec. 14-18s-15e. Drlg. sh. 2,060 ft.

Quarantine Bay—Plaquemines Parish

Gulf Oil Corp.'s No. 6-A Orleans Lv. Bd., Sec. 7-19s-17e. Drlg. sh. 3,567 ft.
Gulf Oil Corp.'s No. 12 State, Sec. 18-19s-17e. T.D. 8,562 ft.; 7-in. csg. 8,525 ft.; I.P. 454 B.P.D.; ⅛-in. ck.
Gulf Oil Corp.'s No. 16 State, Sec. 7-19s-17e. 13⅜-in. csg. 1,598 ft.; T.D. 8,550 ft.; 7-in. csg. 8,503 ft.
Gulf Ref. Co.'s No. 17 State, Twp. 19s-17e. Loc.
Gulf Ref. Co.'s No. 18 State, Twp. 19s-17e. Loc.

Raceland—La Fourche Parish

Amerada Pet. Corp.'s No. 5 South Coast Corp., Sec. 34-15s-19e. Drlg. sh. 9,759 ft.

Sorrento—Ascension Parish

Sorrento Synd.'s No. 2 L. L. Bernard, Sec. 22-10s-4e. R.U.

South Jennings—Jeff Davis Parish

W. H. Collins' No. 1 Richard, Sec. 22-10s-3w. Drk.
Stanolind O. & G. Co.'s No. 1 Clare E. Landry and A. A. Hebert. T.D. 9,638 ft.; 5½-in. csg. 9,487 ft.; perf. csg. 8,895-8,905 ft.; fsg. for tbg.
Stanolind O. & G. Co.'s No. 1 Morgan, Sec. 15-10s-3w. T.D. 9,575 ft.; 5½-in. csg. 9,178 ft.; fsg.
Stanolind O. & G. Co.'s No. 1 L. Remage, Sec. 9-10s-3w. Drlg. sh.&L. 9,067 ft.

South Roanoke—Jeff Davis Parish

Continental Oil Co.'s No. 2 Fay, Sec. 31-10s-3w. R.U.
Continental Oil Co.'s No. 4 Sturdevant, Sec. 35-10s-4w. Drlg. sh.&shls. 7,050 ft.

Starks—Calcasieu Parish

W. T. Burton & McLean's No. 2 Industrial Lbr. Co., Sec. 29-9s-12w. Drlg. sh. 2,967 ft.
W. T. Burton Oil Co.'s No. 1 Lutcher Moore Lbr. Co., Sec. 30-9s-12w. Drlg. gbo. 3,080 ft.

Sweet Lake—Cameron Parish

Pure Oil Co.'s No. 16 Stanolind O. & G. Co., Sec. 12-13s-8w. Drlg. L. 3,420 ft.

Valentine—La Fourche Parish

Wm. Helis' No. 6 Valentine Sugars, Inc., Sec. 2-17s-20e. T.D. 7,405 ft.; 7-in. csg. 7,101 ft.; perf. csg. 6,794-6,808 ft.; I.P. 225 B.P.D.; ⅛-in. ck.

Venice—Plaquemines Parish

Tide Water Asso. Oil Co.'s No. 7 Buras Lv. Bd., Sec. 22-21s-30e. 16-in. csg. 205 ft.; T.D. 10,765 ft.; rmg.

Vermilion Bay—Iberia Parish

Texas Co.'s No. 4-B Vermilion Bay, Twp. 16s-15e. 11¾-in. csg. 4,454 ft.; T. salt 5,855 ft.; base salt 7,435 ft.; stk. csg.; pulling.

Villa Platte—Evangeline Parish

Amerada Pet. Corp.'s No. 1 Leona O. Roberie, Sec. 1-4s-2e. T.D. 10,190 ft.; perf. csg. 10,114-31 ft. and 10,138-60 ft.; I.P. 633 B.P.D.; ¼-in. ck.
Continental Oil Co.'s No. 3 Corell, Sec. 36-3s-2e. Drlg. sh. 9,840 ft.
Continental Oil Co.'s No. 6 Deville, Sec. 3-4s-2e. Drlg. sh. 5,212 ft.
Continental Oil Co.'s No. 6 Haas, Sec. 44-3s-2e. Drlg. sh. 7,540 ft.
Continental Oil Co.'s No. 3 La Central, Sec. 46-3s-2e. Drlg. sh. 7,786 ft.
Continental Oil Co.'s No. 1 Opelousar, St. Landry, Sec. 44-3s-2e. Drlg. sh. 7,020 ft.
Continental Oil Co.'s No. 1 Adam Tate, Sec. 41-4s-2e. Drlg. sh. 9,815 ft.
Continental Oil Co.'s No. 1 J. E. Vidrine, Sec. 1-4s-2e. Drlg. sh. 9,274 ft.
Danciger O. & R. Co.'s No. 2 J. E. Vidrine, Sec. 1-4s-2e. Drlg. sh. 9,216 ft.
J. K. Hughes' No. 2 Ortego, Sec. 36-3s-2e. Drlg. sh. 4,813 ft.

West Cote Blanche—St. Mary Parish

Texas Co.'s No. 2 State, West Cote Blanche. Twp. 16s-6e. Loc.
Texas Co.'s No. 3 State, West Cote Blanche, Twp. 16s-6e. Loc.

West Gueydan—Vermilion Parish

Magnolia Pet. Co.'s No. 1 J. Hartwell, Sec. 5-12s-2w. T.D. 7,180 ft.; 7-in. csg. 7,180 ft.

West Lake Verret—St. Mary Parish

Shell Oil Co., Inc.'s No. 4 Jeanerette. 7⅝-in. csg. 10,683 ft.; T.D. 11,890 ft.; P.B. 11,371 ft.; flwg. into tanks; no ga.; perf. csg. 11,326-31 ft.; flwg. gas and dist.

White Castle—Iberville Parish

Jolly Pet. Corp.'s No. 1 E. B. Adams, Sec. 1-11s-12e. Drlg. sd. 7,887 ft.
Shell Oil Co., Inc.'s No. 16 Wilbert, Sec. 8-11s-12e. Loc.

Woodlawn—Jeff Davis Parish

Union Sulphur Co.'s No. 2 Johnson, Sec. 12-9s-6w. Drlg. sh. 4,020 ft.
Union Sulphur Co.'s No. 1 T. Miller, Sec. 6-9s-5w. Loc.

S. LOUISIANA WILDCATS

Acadia Parish

Continental Oil Co.'s No. 1 W. B. Vincent, Sec. 26-7s-2w. Drlg. sh. 2,367 ft.
Humble O. & R. Co.'s No. 1 Leger, Sec. 83-8s-2e. Drlg. sd. 8,348 ft.
Vincent, Welch & E. J. Nicklos' No. 1 L. Ruppert, Sec. 21-7s-1w. O.T.D. 9,011 ft.; sdtrkd.; T.D. 3,513 ft.; swbd. dry; abd.

Assumption Parish

Falcon-Seaboard Drlg. Co.'s No. 1 Alex Simoneaux, Sec. 43-12s-13e. 18⅝-in. csg. 60 ft.; cg. sd.&L. 5,546 ft.
Shell Oil Co., Inc.'s No. 1 A. L. Patereau, Unit 1, Sec. 60-16s-14e. Loc.

Beauregard Parish

Atlantic Ref. Co.'s No. 1 Lutcher Moore, Sec. 22-3s-11w. Loc.
Atlantic Ref. Co.'s No. 1 Rice Ld. & Lbr. Co., Sec. 22-3s-11w. Loc.
Loffland Bros.' No. 3 Long Bell Lbr Co., Sec. 24-5s-11w. Drlg.sh.&sd. 7,959 ft.

Cameron Parish

Phillips Pet. Co.'s No. 1 Miami Corp., Sec. 11-4s-6w. T.D. 10,195 ft.; well tried to blow out; stk. D.S.; sdtrkd. 3,775 ft.; T.D. 5,378 ft.; sdtrkd.; drlg. sh. 9,316 ft.
Superior Oil Co.'s No. 2 State, Twp. 14s-9w. R.U.

East Baton Rouge Parish

Farris & Golding Drlg. Co.'s No. 1 Paulet, Sec. 58-8s-1e. 10¾-in. csg. 1,780 ft S.D. 2,050 ft.

Iberville Parish

Shell Oil Co., Inc.'s No. 1 Southwood, Sec. 20-9s-2e. Cg. sdy. L. 8,170 ft.

Jeff Davis Parish

Continental Oil Co.'s No. 1 Niblett, Sec. 1-11s-5w. 13⅜-in. csg. 2,085 ft.; 7-in. csg. 10,955 ft.; T.D. 11,748 ft.; 5½-in. csg. 11,747 ft.; perf. csg. 11,604-24 ft.; flwg. 80 to 100 B.F.P.D.; ½-in. ck., 8 to 20% S.W.; T.P. 2,500 lb.
H. M. Naylor's No. 1 Acadia Dev. Co., Sec. 12-10s-2w. T.D. 2,190 ft.; 10¾-in. csg. 2,115 ft.; drlg. sh. 8,150 ft.
Union Sulphur Co.'s No. 1 Somson, Sec. 35-7s-4w. Drlg. sh.&L. 9,346 ft.

La Fourche Parish

Ernest Cockrell's No. 1 La Fourche Ld. Co., Sec. 32-18s-22e. 10¾-in. csg. 650 ft.; T.D. 2,900 ft.
Gulf Oil Corp.'s No. 1-B Bowie Lbr. Co., Sec. 69-15s-19e. Drlg. sh. 9,545 ft.
Humble O. & R. Co.'s No. 1 Caldwell Sugars, Inc., Sec. 115-14s-15e. 13⅜-in. csg. 2,988 ft.; T.D. 10,875 ft.; fsg.

Jefferson Parish

Vendome Pet. Co.'s No. 1 Coulon, Sec. 15-15s-23e. S.D. 2,360 ft.

Livingston Parish

Roderick Tower, Inc.'s No. 1 James Pirie, Sec. 41-7s-3e. S.D. 8,509 ft.

Plaquemines Parish

Gulf Oil Corp.'s No. 1-E Buras Lv. dist., Sec. 1-23s-10e. Drlg. sdy. sh. 2,216 ft.
California Co.'s No. 1 Delta Minerals, Sec. 2-15s-24e, 13⅜-in. csg. 2,028 ft.; T.D. 10,246 ft.; 7-in. csg. 10,188 ft.

Rapides Parish

Gulf States' No. 1 Long Bell Lbr. Co., Sec. 46-4n-3w. R.U.
R. L. Wheelock et al's No. 1 H. V. Rushing, Sec. 1-2n-1s. Loc.

St. Bernard Parish

Gulf Ref. Co.'s No. 4 State-R.R. (Lake Borgne), Twp. 12s-15e. 9⅝-in. csg. 8,161 ft.; T.D. 12,019 ft.; fsg.

St. Charles Parish

R. H. Parker et al's No. 1 C. L. Thompson, Sec. 87-13s-20e. 10¾-in. csg. 2,599 ft.; T.D. 10,235 ft.; fsg.

St. James Parish

St. James Oil Co.'s No. 1 Celstine Plant, Sec. 74-11s-4e. R.U.

St. Mary Parish

Joe Domingue's No. 1 Allain, Sec. 46-13s-9e. S.D. 1,510 ft.
Sun Oil Co.'s No. 1 Belle Isle, Sec. 6-18s-11e. Loc.

Terrebonne Parish

Barnsdall Oil Co.'s No. 1 Nelson, Sec. 2-21s-11e. 10¾-in. csg. 2,767 ft.; 8⅝-in. csg. 10,505 ft.; drlg. 11,435 ft.
Stanolind O. & G. Co.'s No. 1 State (Bay Junop), Sec. 35-21s-14e. Loc.
Texas Co.'s No. 4 State, Coon Point, in Lake Caillou, Twp. 23s-14e. T.D. 10,210 ft., salt; T. salt 9,777 ft.; abd.

Vermillion Parish

La. Ld. & Expltn. Co.'s No. 1 Walter White hrs., Sec. 17-15s-1e. 13⅜-in. csg. 2,800 ft.; drlg. sh. 8,199 ft.
Texas Co.'s No. 1 Vermilion Par. Sch. Bd., Sec. 16-13s-4e. T.D. 9,923 ft.; 7⅝-in. csg. 9,918 ft.; T.D. 10,595 ft.; P.B. 10,250 ft.; sdtrkd. 10,300 ft.; cd. S.W. sd. 10,659-79 ft.; T.D. 11,762 ft.; perf. csg. 11,378-88 ft.; flwd. 121 B.F.P.D.; 13/64-in. ck.; 16% S.W.; killed to retest.
G. H. Vaughn's No. 1 Avery Boullion, Sec. 49-13s-4e. Drlg. sh. 10,260 ft.

TEXAS

Week Ended April 13

GULF COAST FIELDS

Anchor—Brazoria County

Humble O. & R. Co.'s No. 1 R. H. Carr, Blk. 62, 9⅝-in. csg. 6,950 ft.; T.D. 10,791 ft.; 7-in. csg. 10,762 ft.; perf. csg. 10,479-91 ft.; I.P. 138 B.P.D.; ¼-in. ck.
Humble O. & R. Co.'s No. 1 Crockett, J. de Jesus Valderas Sur. 13⅜-in. csg.; T.D. 10,617 ft.; 5½-in. csg. 10,617 ft.; perf. csg. 9,626-28 ft.; rec. S.W.; abd.
Humble O. & R. Co.'s No. 1 Galznick & Taylor, J. de Jesus Valderas Sur. 9⅝-in. csg. 6,953 ft.; T.D. 10,994 ft.; 7-in. csg. 10,822 ft.; perf. csg. 10,480-83 ft.; I.P. 75 bbl. dist. per day; 5/32-in. ck.
Humble O. & R. Co.'s No. 1 Heim & Holland, S. Marsh Sur. Loc.
Humble O. & R. Co.'s No. 1 Mettler. Drlg. 750 ft.
Glenn McCarthy's No. 1 Neidringhaus, J. Bradley Sur. 13⅜-in. csg. 926 ft.; drlg. sh. 10,807 ft.
Glenn McCarthy's No. 1 Kate and Laura Yocum, J. D. Valderas Sur. Drlg. sh. 9,615 ft.
Sun Oil Co.'s No. 1 Morris Stern, Shubal Marsh Sur. 18⅝-in. csg. 128 ft.; drlg. sh. 8,856 ft.

Old Ocean—Brazoria County

Harrison & Abercrombie's No. 8 Armstrong, Polly & Chance Sur. Drlg. sd. &sh. 10,945 ft.
Harrison & Abercrombie's No. 1 A. F. Wilson, D. McCormick Sur. Drlg. sd.& L. 5,330 ft.
Stanolind O. & G. Co.'s No. 2 Giles, C. Breen Sur. Drlg. sh.&L. 3,536 ft.
Stanolind O. & G. Co.'s No. 1 Hughes, C. Breen Sur. Drlg. sh.&sd. 9,780 ft.
Sun Oil Co.'s No. 4 Borsodl, C. Breen Sur. 13⅜-in. csg. 1,520 ft.; 9⅝-in. csg. 7,009 ft.; drlg. sh. 7,920 ft.
Sun Oil Co.'s No. 5 McCampbell, C. Breen Sur. Drlg. L. 5,320 ft.

Seabreeze—Chambers County

Sun Oil Co.'s No. 1 Felix Jackson, A. Y. Barbo Sur. 10¾-in. csg. 1,943 ft.; cg. 8,212 ft.

Rosenberg—Fort Bend County

Humble O. & R. Co.'s No. 1 R. Kroesche, H.&T.C. Sur. Drlg. sh. 7,986 ft.

Caplen—Galveston County

Sun Oil Co.'s No. 2-26 State, S. F. Hughes Sur. Drlg. sh. 6,200 ft.
Sun Oil Co.'s No. 4 Zinn & Forman, C. A. Hughes Sur. Drlg. sdy. sh.&L. 6,156 ft.

League City—Galveston County

Phillips Pet. Co.'s No. 7 Lobit, Perry & Austin Sur. Drlg. sh. 9,327 ft.
Phillips Pet. Co.'s No. 4 Stewart Title Guaranty Co., S. F. Austin Sur. 10¾-in. csg. 3,520 ft.; 7⅝-in. csg. 9,510 ft.; T.D. 11,270 ft.; well blew out; killed; fsg.

Clear Lake—Harris County

Humble O. & R. Co.'s No. 37-C West, G. B. McKinstry Sur. T.D. 5,908 ft.; W.O.C.
Stanolind O. & G. Co.'s No. 3 Sowden, J. Lindsey Sur. T.D. 5,485 ft.; W.O.C.

Friendswood—Harris County

Humble O. & R. Co.'s No. 1-C H. Godwin, W. K. Smith Sur. Drlg. sh. 3,360 ft.
Humble O. & R. Co.'s No. 2 Ruby, T. Choate Sur. Drlg. sh.&sd. 2,448 ft.

Fannett—Jefferson County

Gulf Oil Corp.'s No. 4 Bordages, J. Probarth Sur. Drlg. sh.&L. 4,426 ft.

North Cheek—Jefferson County

Strake Pet., Inc.'s No. 1 J. H. Phelan, S. Stivers Sur. T.D. 8,945 ft.; abd.
Strake Pet., Inc.'s No. 1 Pipkin, H.T. &B. Sur. 15. Drlg. sh. 8,620 ft.

South China—Jefferson County

Titanic Oil Co.'s No. 3-A Broussard, S. Miles Sur. Loc.

Esperson—Liberty County

General Crude Oil Co.'s No. 20 Davis, A. McNeil Sur. 8⅝-in. csg. 7,181 ft.; drlg. sh. 8,200 ft.
General Crude Oil Co.'s No. 12-B Esperson, A. McNeil Sur. R.U.

Martha—Liberty County

Stanolind O. & G. Co.'s No. 1 Garrow, I.&G.N.R.R. Sur. 7. Drlg. sd.&sh. 8,700 ft.

Wilson Creek—Matagorda County

Barnsdall Oil Co.'s No. 1 Stoddard, G. B. M. Cotton Sur. T.D. 5,350 ft.; D.S. stk.

Segno—Polk County

Gulf Oil Corp.'s No. 4 Quinn, A. Morales Sur. R.U.
Gulf Oil Corp.'s No. 30 Wing, I.&G.N. Sur. 15. Drlg. sh. 7,427 ft.
Gulf Oil Corp.'s No. 32 Wing, I.&G.N. Sur. 14. Cg. 8,037 ft.
Gulf Oil Corp.'s No. 33 Wing, I.&G.N. Sur. 15. Loc.
Gulf Oil Corp.'s No. 34 Wing, I.&G.N. Sur. 13. Loc.
Humble O. & R. Co.'s No. 22 Kirby Lbr. Co., M. Victor Sur. Drlg. sh. 5,160 ft.

Joe's Lake—Tyler County

Republic Prod. Co.'s No. 1 fee, A. Sterne Sur. T.D. 4,875 ft.; tstd. 425 lb. W.P.; rec. mud cut with dist.; S.D.; W.O.
Republic Prod. Co.'s No. 35 Wing, I.& G.N. Sur. 15. Drlg. sh. 4,620 ft.

Hilje—Wharton County

Texas Co.'s No. 2 Peters, E.T.R.R. Sur., Sec. 101. Loc.

GULF COAST WILDCATS

Brazoria County

Glenn McCarthy's No. 1 E. W. K. Andrau, H.T.&B. Sur. 5. 10¾-in. csg. 3,512 ft.; T.D. 11,468 ft.; sdtrkd.; T.D. 11,393 ft.; set 4-in. lnr. on bttm.
Glenn McCarthy's No. 2 Houston Farm Dev. Co., J. Perry & E. Austin Sur. 7. 10¾-in. csg. 3,492 ft.; T.D. 11,760 ft.; 5½-in. lnr. 11,170 ft.
Glenn McCarthy's No. 1 W. B. Munson, Samuel Carter Sur. T.D. 6,628 ft.; run 9⅝-in. csg.
Rowan & Nichols Oil Co.'s No. 1 Hubbard, Wm. Harris Sur. R.U.
Rowan Drlg. Co. et al's No. 1 McIlvain, A.C.H.&B. Sur., Sec. 27. T.D. 7,515 ft.; abd.

Chambers County

Sun Oil Co.'s No. 1 Clara C. Smith, T.& N.O. Sur. 82. Drlg. sh. 8,026 ft.
Standard Oil Co. of Texas' No. 61-54 State. T.D. 7,610 ft.; S.W. sd.; S.D.

Colorado County

Cockburn Oil Corp. No. 1 R. W. Ferrs, H. Chrisman Sur. Loc.
Shell Oil Co., Inc.'s No. 1 Plow Realty Co., Obediah K. Winn Sur. Drlg. sh. 5,146 ft.

Fayette County

F. J. Hynes et al's No. 1 A. B. Kerr, J. Parrott Sur. S.D. 3,500 ft.

Fort Bend County

H. C. Cockburn's No. 1 G. W. Burkett, Bundleck Sur. Loc.
W. L. Goldston's No. 1 Hackstedt, H.& T.C.R.R. Sur., Sec. 47. Loc.
Temple Hargrove et al's No. 1 Sugar Ld. Ind., A. Alcorn Sur. Drlg. sh. 7,126 ft.
Tide Water Asso. Oil Co.'s No. 1 Geo. Armstrong, Jas. Scott Sur. R.U.

Galveston County

Continental Oil Co.'s No. 1 Stewart Title Guaranty Co., Perry & Austin Sur. Drlg. sh. 8,656 ft.

Grimes County

L. J. Sessions et al's No. 1 J. T. Barry, S. Fuelton Sur. Drlg. sh. 4,992 ft.

Harris County

T. A. Carlton Bunte et al's No. 1 Bender, J. W. Singleton Sur. 10¾-in. csg. 1,205 ft.; S.D. 8,003 ft.
Gulf Oil Corp.'s No. 1 H. H. Roberts, A. Roberts Sur. T.D. 7,583 ft., S.D.
Martin Thompson's No. 1 Highlands Farm Corp., J. White Sur. T.D. 48 ft.

Jackson County

W. Stewart Boyle's No. 1 J. M. Bennett, R. Musquez Sur. Drk.
J. F. Hutchins et al's No. 1 Wearden, J. Williams Sur. Loc.
John O'Neal et al's No. 1 Ward est., I.& G.N.R.R. Sur. Loc.

Jasper County

Midwest Co.'s No. 1 W. B. Boykin, M. Rack Sur. Loc.

Jefferson County

Hebert & Smith's No. 1 W. S. Clubb, J. L. Lawhorn Sur. 10¾-in. csg. 1,184 ft.; cg. 7,450 ft.
Merrimac Oil Corp.'s No. 1 State, Tr. 72, 50 ft. due E of Harwell's abd. hole. W.O.; R.U.

Liberty County

Gulf Oil Corp.'s No. 1 Kirby Lbr. Co., Hugh Means Sur. Drlg. sd. 7,830 ft.
Hebert & Smith's No. 1 W. E. Boyt, H. &T.C.R.R. Sur. T.D. 8,834 ft.; cleaned hole to 8,096 ft.; sdtrkd. 7,824 ft.; 7-in. csg. 8,700 ft.; T.D. 8,865 ft.; perf. csg. 8,535-75 ft.; made sqz. job; W.O.C.

Matagorda County

Deep Rock Oil Corp.'s No. 1 Tom Petrucha, F. W. Dempsey Sur. T.D. 5,610 ft.; fsg.
Marr McLean's No. 3 Gulf-Tex Oil Co., Ira Ingram Lge. R.U.
Stanolind O. & G. Co.'s No. 1 General American Life Ins., J. C. Peyton Sur. Drlg. sh. 8,526 ft.
Texas Gulf Prod. Co.'s No. 1 Gulf Tex. Oil Co., Ira Ingram Sur. Drk.
Texas Co.'s No. 1 Taylor, Freeman George Sur. Drlg. sh. 7,467 ft.
Van M. Vincent's No. 1 J. F. McNabb Est., E. R. Wightman Lge. Loc.

Montgomery County

H. C. Cockburn et al's No. 1 Bender, Montgomery Co. Sch. Ld. and De Crow Sur. Loc.
Continental Oil Co.'s No. 1 Bender est., Montgomery Co. Sch. Ld. Sur. 13⅜-in. csg. 1,243 ft.; drlg. sh. 9,850 ft.
David B. MacDaniel's No. 1 Hattie O. Baldwin, Walker Co. Sch. Ld. Sur. 10¾-in. csg. 1,230 ft.; T.D. 9,741 ft.; 5½-in. csg. on bttm.
West Conroe Oil Corp.'s No. 1 R. L. Caifee, H. N. McDillon Sur. S.D. 5,017 ft.; tstd. S.W. 4,516-78 ft.

San Jacinto County

Shell Oil Co., Inc.'s No. 1 Santa Fe Tie & Lbr. Co., J. Rankin Sur. R.U.

Tyler County

J. C. Bonham's No. 1 Southwestern Lbr. Co., F. Smyth Sur. T.D. 1,340 ft.; P.B. 1,126 ft.; 4-in. csg. 1,107 ft.; flwd. P. L.O. for 3 hrs.; sanded up.
J. Z. Werby's No. 1 Hayes, J. C. Boyett Sur. T.D. 5,526 ft.; abd.

Washington County

J. A. Deering's No. 1 C. W. Bohne, S. Gates Sur. S.D. 6,545 ft.
Mount Selman Oil Co.'s No. 1 Fritz Fuelberg, W. Lightfoot Sur. S.D. 6,001 ft.

Wharton County

Cockburn Oil Corp.'s No. 1 Leverage, Jonathan Scott Sur. Drlg. sh. 8,018 ft.
O. C. Garvey's No. 1 T. N. Menefee, S. P. Middleton Sur. T.D. 4,604 ft.; abd.
Humble O. & R. Co.'s No. 1 Wallace & Wells, Morris & Cummings Sur. Drlg. sh. 6,180 ft.
Dr. T. M. Neal's No. 1 fee, Elisha Flack, 4,840 ft.
Strake Pet. Corp.'s No. 1 Poole, Sec. 25, G.H.&H. Sur. T.D. 10,110 ft.; 5½-in. csg. on bttm.; P.B. 9,973 ft.; perf. csg. 9,938-55 ft.; flwd. 3 B.F.P.H., 30% oil, 70% wash wtr.; started to flow 100% S.W.; killed; reperf. csg. 9,927-50 ft.; flwd. S.W.; perf. csg. 9,927-50 ft.; flwg. S.W.; killed; T.A.

S. W. TEXAS WILDCATS

Aransas County

Continental Oil Co.'s No. 2 St. Charles Co., R. D. Blassman Sur.; (relief well to blow out); S.D. 2,740 ft.

Atascosa County

Red Bank Oil Co. et al's No. 1 J. P. Pratt Francisco de la Garza Sur. 46; 7-in. csg. 2,347 ft.; set 5½-in. lnr. 3,074 ft.; S.D. 3,276 ft.

Bastrop County

August Bering's No. 1 Rivers, B. Osborne Sur. R.U.
J. L. Collins & Co.'s No. 1 Powell, J. G. Welchmeyer Sur. Drlg. sh. 1,786 ft.
C. R. Franklin's No. 1 Oscar McDonald, Martha Baker Sur. T.D. 2,232 ft.; fsg.
Ogden & Riddle's No. 6 Riddle, J. B. Blalock Sur. R.U.

Bee County

Mills Bennett Prod. Co. and Anderson-Prichard Oil Co.'s No. 2 Robinson, J. M. Uranga Sur. (Wlx. test, West Tuleta field). 13⅜-in. csg. 2,537 ft.; 9⅝-in. csg. 7,804 ft.; T.D. 9,210 ft.; perf. csg. 7,545-50 ft.; flwg. dist. and wash wtr. tstg.
Sultex Oil Co.'s No. 1 Wood, Jas. McGeehan Sur. T.D. 5,791 ft.; fsg.
Union Prod. Co.'s No. 56 Ray T. Hanson Sur.; (Pettus field). Wlx. test; 10¾-in. csg. 4,856 ft.; T.D. 8,714 ft.

Bell County

J. J. Cormas' No. 1 Jeff Ellis, Elizabeth Berry Sur. S.D. 493 ft.

Bexar County

Joe Noake's No. 1 San Antonio Sub. Irrg. Farm, W. Miller Sur. 180. Drlg. 705 ft.
Philtop O. & G. Co.'s No. 2-A Patton, Fernando Rodriguez Sur. T.D. 1,938 ft.; S.D.
J. A. Tarver's No. 1 Florence Lam, Manuel de Luna Sur. 3. 6⅝-in. csg. 1,205 ft.; T.D. 1,692 ft.; cd. bkn. sh. 1,639-92 ft.; S.S.O.; bailed est. 10 bbl. oil P.D. before sanding up; S.D.
J. A. Tarver et al's No. 1 Joseph Leonard, Manuel de Luna Sur. 3. S.D. 1,696 ft.

Burleson County

H. Y. Barnett's No. 1 Giesenschlag, J. W. Hollingsworth Sur. S.D. 1,935 ft.

Caldwell County

J. E. Dickson's No. 1 Jeff Connolly, J. D. Rains Sur. R.U.
Kean & Williamson's No. 1 E. E. Rector, J. Roberts Sur. S.D. 1,100 ft.

Calhoun County

Coronado Corp.'s No. 1 K. Welder, Hidalgo Sur., 3 mi. SE Seadrift. "Tight well"; reported to be tstg.; 5½-in. csg. 9,750 ft.; perf. csg. 9,500-9,600-9,700 ft.; rec. S.W.; made sqze. job at 8,580 ft.; S.D.

Eura B. Oil Co.'s No. 1 T. P. Traylor, Sec. 3, I.&G.N. Sur. Loc.

Cameron County

Sal Vieja Oil Co. et al's No. 1 Garcia. Santa Isabel gr. Drlg. sh. 8,310 ft.

De Witt County

Atlantic Ref. Co.'s No. 1 Pearl Conwell, Chas. Lockhart Sur. T.D. 8,518 ft.; 5½-in. csg. 8,286 ft.; rec. S.W. 8,030-40 ft.; perf. csg. 7,855-85 ft.; flwd. at rate of 122 bbl. dist. per day; ¼-in. ck. on tbg. and csg.

Duval County

Alaska Tex Oil Corp.'s No. 2 W. R. Peters, B.S.&F. Sur., Sec. 791. T.D. 1,-608 ft.

C. Andrade's No. 1 Miller, J. M. Ynojosa gr., Sec. 62. 10¾-in. csg. 624 ft. T.D. 6,020 ft.; abd.

G. W. Basom's No. 1 Adami, Arnold & Barrett Sur. 47. S.D. 457 ft.

Bridwell Oil Co.'s No. 1 E. A. Parr, T. C. Rogers Sur. T.D. 4,520 ft.; abd.

W. L. Catlin et al's No. 1 Louis Escapule, J. Poitevent Sur. 73. R.U.

Mayfair Oil Corp.'s No. 1 Yates, S.A.&M. G.R.R. Sur. T.D. 3,670 ft.; abd.

Sun Oil Co.'s No. 1 Garcia, A.B.&M. Sur., Sec. 407. Drlg. sh. 1,567 ft.

Falls County

J. Shaunfield's No. 1 Barganier, J. M. Graham Sur. Bda. L.; S.S.O.; T.D. 1,-188 ft.; recmtd. csg.; W.O.; cmt. failed to hold.

Gonzales County

M. T. Huebner's No. 1 M. P. Smith, R. Plummer Sur. T.D. 1,135 ft.

Guadalupe County

C. E. Euton's No. 1 Echols Yrin Co., Smith Sur. 6. T.D. 813 ft.; abd.

F. W. Nute et al's No. 2 Howell, Jacob Darst Sur. 9. T.D. 167 ft.

F. D. Spratt's No. 1 Wm. Zuchl, Claibore Rector Sur. S.D. 855 ft.

Hidalgo County

Gulf State Oil Co.'s No. 2 Cardinas, San Salvador del Tule gr. 16-in. csg. 157 ft. T.D. 8,700 ft.; fsg.

Jim Hogg County

J. L. Collins & Co.'s No. 1 Palacios, D. G. Duce Sur. 287. R.U.

Humble O. & R. Co.'s No. 4 C. T. Mestena O. & G. Co., San Antonio de Balurate gr. T.D. 6,043 ft.; abd.

Sun Oil Co.'s No. 3 East Antonio, V. Prado Sur. 38. Drlg. sh. 3,785 ft.

Jim Wells County

Frank Gravis, Inc.'s No. 1 Forry, Lavaca gr. S.D. 5,740 ft.

Henshaw Bros.' No. 1 Blasehke, Casa Blanca gr. R.U.

H. H. Howell's No. 1 Garza, La Tinaja De Lara gr. 10¾-in. csg. 753 ft.

M. M. Miller's No. 1 fee, Casa Blanca gr. T.D. 232 ft.; S.D.

W. B. Osborne et al's No. 1 Almond, H. Riggs Sur. 10¾-in. csg. 502 ft.; drlg. 4,430 ft.

Wm. Spice et al's No. 2 Schaller, Los Presnos de Abajo gr. Loc.

Wm. Spice's No. 2 Schallert, Los Presnos de Abajo gr. Loc.

Windsor Oil Co.'s No. 1 Kusel, Casa Blanca gr. R.U.

Kendall County

C. M. Dewey's No. 2 Seidensticker, R. Davis Sur. 20. S.D. 950 ft.

Kimble County

Austin Bridge Co.'s No. 1 Wilkinson, Brooks & Burleson Sur. S.D. 492 ft.

J. C. Renfro's No. 1 D. C. Morales, Hrs. of H. Grote Sur. 423. T.D. 575 ft.

Schwab-Carlyle & Auld's No. 1 Baker. F. C. Stisser Sur. T.D. 799 ft.

E. E. Sorey's No. 1 Frank Baker, Benj. Underwood Sur. 443. Drlg. 140 ft.

Kinney County

Cooper Gas Co.'s No. 1 L. L. Farr, Geo. L. Bledsoe Sur. 835. T.D. 1,988 ft.; bailing.

Kleberg County

Skelly Oil Co.'s No. 1 State, Laguna de Los Olmos gr., Tr. 385. Cg. sd. 6,320 ft.

Lee County

Fred Pederson et al's No. 1 Brown, David Hudson Sur. T. Glen Rose L. 6,600 ft.; S.D. 7,956 ft.

Live Oak County

H. F. Baker's No. 1 Saunders, Christ Scanlon Sur. 67. T.D. 341 ft.; 5½-in. csg. 340 ft.; comp. as gas well.

H. F. Baker's No. 2 Saunders, C. Scanlon Sur. 67. R.U.

E. M. Jones' No. 1 West, Lot 400, Blk. of West subd. Drlg. 10,340 ft.

Luling O. & G. Co.'s No. 2 R. F. Byler, A. A. Dinn Sur. 182. R.U.

Messer & Cage's No. 1 Kluver, S. E. Gilmore Sur. 406. 10-in. csg. 35 ft.

Pocono Dev. Co.'s No. 1 San Antonio Joint Stock Ld. Bnk., Richard Everett Sur. 1. Drlg. 870 ft.

W. R. Quinn, et al's No. 1 Stolze, J. F Huizar Sur. 31. Cg. 1,096 ft.

Smith & Storey's No. 1 Lyne, A.C.H.& B. Sur. 163. Loc.

L. W. Stieren's No. 3 Lange, Thos. Adams Sur. T.D. 1,497 ft.

McMullen County

C. D. Scarborough's No. 1 First Natl. Bk. of Rosebud, Jas. Garner Sur. S.D. 1,955 ft.

C. C. Shumway & Burns' No. 7 Shiner, H. M. Brewer Sur. 1. R.U.

Tybro Roy. Corp.'s No. 1 F. B. Horton, Jas. M. Jean Sur. 29. T.D. 656 ft.; 5½-in. csg. 650 ft.

Tybro Royalty Corp.'s No. 2 Martin, M. L. Williams Sur. Drlg. 603 ft.

Van Dresar's No. 2 Brown Sur. 54. Loc.

Medina County

Great Southern Exp. Co.'s No. 1 A. Muennick Sur. 5. S.D. 410 ft.

Milam County

Fritz Fuchs' No. 1 Unaseh, Jose Justo Llendo Sur. T. clk. 1,100 ft.; T.D. 1,-895 ft., L.; 5½-in. csg. 1,865 ft.; swbg; no show oil.

Nueces County

Houser-Warren & Ginther's No. 1 Lynn Davis, Palo Alto gr. T.D. 7,024 ft.; abd.

Humble O. & R. Co.'s No. 1 D. F. Duncan, Blk. 50, Lot 2. T.D. 8,050 ft.; abd.

John Manley et al's No. 1 Ruegg, Geo. H. Pauls subd. of Driscoll ranch. Loc.

Richardson Pet. Co.'s No. 1 Studer, M. L. De Herrera gr. Drlg. 6,667 ft.

Wellington Oil Co. and Seaboard Oil Co's No. 1 Swenson, Santa Petronilla Sur. Drlg. sh. 6,918 ft.

Refugio County

H. J. Porter's No. 1 R. H. Morrow, E. Perry Sur. T.D. 7,331 ft.; abd.

San Patricio County

Argo Oil Co.'s No. 1 Mary East, J. P. Borden Sur. Cg. 4,478 ft.

L. L. Smith's No. 1 Timon, Town Tr. of San Patricio, De Hibernia. Drlg. 1,-510 ft.

Texas Gulf Prod. Co.'s No. 1 San Antonio Loan & Tr. Co., M. McAuley Sur. T.D. 7,537 ft.; tstg.

Tide Water Asso. Oil Co. and Sinclair Prairie Oil Co.'s No. 1 Ragsdale, S. S. Gillett Sur. Drlg. sh. 6,900 ft.

Fred Wood et al's No. 1 C. E. Hart, Wm. G. Burgess Sur. 5½-in. csg. 7,250 ft.; perf. csg. 6,901-09 ft. and 6,910-21 ft.; flwg.; no ga.

Starr County

Lynes & Robertson's No. 1 Villareal, C. C.S.D.&G.N.R.R. Sur. 241. Loc.

Sun Oil Co.'s No. 1 W. G. Lehr, C.C.S.D. R.G.N.G.R.R. Sur. Cg. 4,906 ft.

Sun Oil Co.'s No. 1 Rodriguez, Santa Teresa gr. T.D. 7,502 ft.; tstg. 6,434-39 ft.

Syndicate Oil Corp.'s No. 1 Sanchez, Santos Sanchez Sur. 344. T.D. 1,004 ft.

Travis County

J. H. Sprouls and A. G. Hinn's No. 1 A. D. Balm, Santiago de Valle gr. S.D. 545 ft.

Val Verde County

Joiner Oil Co. et al's No. 1 Clyde Sellers. T.D. 1,848 ft.; S.D.

Victoria County

John Blaffer et al's No. 1 Edwards, D. Mira Sur. R.U.

Colton & Colton's No. 1 Buhler est., I. R.R. Co. Sur. 27. T.D. 2,698 ft.; 5½-in. csg. 2,696 ft.; flwd. est. 2 B.O.P.H.; ¼-in. ck.

Colton & Colton's No. 1 Terrell, J. B. Sideck Sur. Loc.

Humble O. & R. Co.'s No. 1 R. H. Welder, S.A.&M.G. Sur. 9. Spd.

John Mayo et al's No. 1 Hubalak, V. Garcia Sur. T.D. 6,121 ft.; abd.

Webb County

Cash & Reynolds' No. 1 Frost, C.C.S.D.& R.G.N.G. Sur. 35. Loc.

H. E. Hall's No. 1 Slator, Mission Oil Co., J. V. Borrego gr. R.U.

M. L. Massingill's No. 2 Kirkpatrick, C. C.S.D.&R.G.N.G. Sur. 59. Loc.

Milo Orr et al's No. 1 Garza, C.C.S.D.& R.G.N.G. Sur. 47. T.D. 2,520 ft.; abd.

Sinclair Prairie Oil Co.'s No. 1 Callaghan Ld. & Cattle Co., B.S.&F. Sur. 585. 13⅜-in. csg. 1,598 ft.; drlg. 6,550 ft.

Texas Co.'s No. 1 Billings, C.C.S.D.&R. G.N.G. Sur. 31. T.D. 1,711 ft.; abd.

Williamson County

C. C. Lanier's No. 1 Guental, Harry Cooke Sur. R.U.

Wilson County

Henshaw Bros.' No. 1 E. W. Schneider, Don Casper Flores Sur. 10-in. csg. 99 ft.; T.D. 3,535 ft.; abd.

W. D. Moore et al's No. 1 Lorenz, Morris May Sur. S.D. 75 ft.

E. E. Young's No. 1 O. D. McMeans, C. W. Parrott Sur. S.D. 755 ft.

Zapata County

J. P. Martin et al's No. 1 Serapio Vela, El Grullo gr. T.D. 3,500 ft.

Zavala County

H. F. Wilcox O. & G. Co.'s No. 2 Storey, G.W.T.&P.R.R. Sur. T.A.C. 3,430 ft.; T.D. 4,320 ft.; abd.

WEST TEXAS WILDCATS

Andrews County

Helmerich & Payne, Inc.'s No. 1 University, Sec. 11, Blk. 11, University Sur.; 5,500-ft. test. Loc.

Illinois Oil Co.'s No. 1 University, Sec. 14, Blk. 12, Univ. Sur. Drlg. 2,470 ft.

Richmond Drlg. Co. and T. F. Hunter's No. 1 University, 660 ft. N and E lines of Sec. 21, Blk. 11, University Sur. New contract depth 5,900 ft.; drlg. 5,-565 ft.

Concho County

Charter O. & G. Co.'s No. 1 T. Y. Hill, SW part of Julius Frederick Sur. 1693, Abst. 198. Rmg. 7-in. 2,082 ft.

Floyd Dodson's No. 1 Wilson, Thomas Green Sur. 1; 3,500-ft. test. S.D.R. 2,-905 ft.

Crane County

Gulf Oil Corp.'s No. 5 M. B. McKnight, Sec. 1, Blk. 21-B, P.S.L. Sur. Bailing wtr. 6,342 ft.

Gulf Oil Corp.'s No. 1-K University, 330 ft. N and E lines, Sec. 2, Blk. 31, University Sur. Drlg. 3,272 ft.

Gulf Oil Corp.'s No. 12 Waddell, Sec. 30, Blk. 26-B, P.S.L. Sur. 12-in. 532 ft. S.O. 3,215-20 ft.; S.S.G. 3,635 ft.; 8-in. csg. cmtd. 3,713 ft.; S.O. wtr. 3,763 ft. W.O.C. 3,750 ft.

Gulf Oil Corp.'s No. 31 Waddell, Sec. 5, Blk. 24-B, P.S.L. Sur. R.U.T.

Crockett County

Clark & Cowden's No. 1 G. D. Atwood, Sec. 49, Blk. H.H., G.S.&S.F. Sur. M. I.M.

Continental Oil Co.'s No. 3 Todd unit, Sec. 29, Blk. WX, G.C.&S.F. Sur., E offset to discovery well. M.I.R. 510 ft.

Moore Explin. Co.'s No. 1 A. C. Hoover, Sec. 16, Blk. 1, G.C.&S.F. Sur. Loc.

Moore Explin. Co.'s No. 1 Noelke, Sec. 10, Blk. G.G. Drlg. wtr. well.

Soma O. & G. Synd.'s No. 1 W. T. Noelke, NW part Sec. 30, Blk. GG, H E.&W.T. Sur. Hit sat. at 1,035 ft.; blowing est. 100 bbl. hrly.

Ector County

Everts Drlg. Co.'s No. 1 J. L. Johnson, Sec. 30, Blk. 43, Twp. 1s, T.&P. Sur. Loc.

M. A. Grisham et al's No. 1 R. B. Cowden, 600 ft. from N and E lines, Sec. 4, Blk. 45, Twp. 1n (deep test), T.&P. R.R. Sur. Prep. run elec. survey at 6,-010 ft.

Western & Southern Oil Co.'s No. 1 Smith, NW cor. Sec. 6, Blk. 42, T-1-S, T.&P. Sur.; deep Holt-horizon test. C.O. 4,400 ft.

Hockley County

Denver Prod. & Ref. Co. and Helmerich & Payne, Inc.'s No. 1 Whiteface Farms, 660 ft. from S and E lines Labor 22, Lgt. 77, Reeves C.S.L. Sur. Had 72 ft. of sat.; drld. plug and found no shows: T.D. 4,796 ft.; tstd. sulf. wtr.; S.D.O. 4,794 ft.

Hudspeth County

Haymon Krupp Oil & Ld. Co.'s No. 1 Briggs, Sec. 24, Blk. 73, Twp. 7, T.& P. Sur. Drlg. 6,175 ft.

Mitchell County

Ewing & Hanes' No. 1 G. I. Grable, Sec. 195, Blk. 3, H.&G.N. Sur.; 1,800-ft. test. Drlg. 1,280 ft.

N. V. Hilburn's No. 1 E. T. Strain, Sec. 82, Blk. 97, H.&T.C. Sur. Drlg. 1,360 ft.

Pecos County

Humble O. & R. Co.'s No. 1 Young, Sec. 33, Blk. 10, H.&G.N. Sur. Top detrital 5,185 ft.; T. Simpson 5,624 ft. after logging 504 ft. of detrital; drlg. 6,865 ft., still in Simpson.

B. McCandless and General Crude Oil Co.'s No. 1 Virginia W. Crockett, Sec. 5, Blk. 110, T.C.R.R. Sur. T. Ellenburger 4,401 ft.; tstg. est. 6,000,000 cu. ft. gas after acd.; rng. tbg.; T.D. 4,479 ft. est. 4,000,000 cu. ft. gas and 365 B.O. P.D.; made 531 B.O. in 5 hrs.; S.I.

H. H. Sides' No. 1 Blackstone-Slaughter, Sec. 29, Blk. 129, T.&St.L. Sur., 1,050 ft. W, 250 ft. S lines of section. T.D. 380 ft.; no report.

Skelly Oil Co.'s No. 1 J. S. Masterson (Ordovician test), Sec. 101, Blk. 10, H. &G.N. Sur. Topped Ellenburger 44 ft high; flwd. 32 B.O.P.H.; made 518 B. O. in 10 hrs.; S.I. 5,614 ft.

R. L. Walker's No. 1 White & Baker, Sec. 86, Blk. 194, G.C.&S.F. Sur. Prep. shoot 2,016 ft.; S.S.O.; testg. 2,016 ft.; est. 10 B.P.D. 1,991-2,016 ft.; after shot.

Reeves County

T.A.T. Oil Co.'s No. 1 U. G. Orenderff, Sec. 10, Blk. 59, P.S.L. Sur. S.D.O. 1,-901 ft.

Scurry County

Coffield & Guthrie, Inc.'s No. 1 J. W. Moar, Sec. 334, Blk. 97, H.&G.N. Sur., NW Sec.; 4,500-ft. test. Cg. 440 ft.

Coffield & Guthrie's No. 1 Reiter, Sec 155, Blk. 97, A.T.&T.C. Sur. Tstg. 2,-950 ft.

Stonewall County

Shell Oil Co., Inc.'s No. 1 Smith, Sec 143, Blk. 1, H.&T.C. Sur. Tstg. W.S.O. 5,617 ft.; drlg. 5,689 ft.

Southern's No. 2 Carlisle, Sec. 293, Blk. D, H.&T.C. Sur. T. Ellenburger 5,540 ft.; S.S.O. 6,543 ft.; P.B. to 5,544 ft. to test in Ellenberger L.; T.D. was 6,728 ft. in Hickory sd. Rng. tbg. to treat at P.B. depth 6,555 ft. from 6,-728 ft., T.D.; treated with 2,500 gal.; then swbd. mostly acd. wtr.; S.D.

Terrell County

E. M. Thomasson's No. 2 Bates, Sec. 30, Blk. 1, I.&G.N. Sur. Drlg. 1,324 ft.

Terry County

Geo. P. Livermore's No. 1 M. E. Jacobson, Sec. 6, Blk. 11-D, C.&M. Sur. Drlg. 4,370 ft.

Tide Water Asso. Oil Co.'s No. 1 Lowe, SW part Sec. 3, Blk. 37-C, P.S.L. Sur. Drlg. 4,400 ft.

Tom Green County

B. C. Mann's No. 1 Joe Funk, 330 ft. N. 1,650 ft. E lines, Sec. 34, Blk. 5, H.& T.C. Sur. Rmg. at 2,995 ft.; T.D. 1,-315 ft.

Dan Short's No. 1 J. G. Davidson, 2,161 ft. from SL., 2,493 ft. from NW cor. L. P. Moore Sur. S.S.O.&G. 2,660-65 ft.; S.D.O. 3,325 ft.

Ward County

Atlantic Ref. Co.'s No. 1 Wickett-University, Sec. 12, Blk. 16, University Lds. Sur., 1,980 ft. N and E lines of section. R.U.R.

Gulf Oil Corp.'s No. 5 Wristen, Sec. 13, Blk. 5, H.&T.C. Sur.; scheduled Ordovician test. Drlg. 6,540 ft.

Kenneth Slack's No. 1 Bird Hayes, Sec. 148, Blk. 34, H.&T.C. Sur. T. Delaware 5,003 ft.; S.D. 5,010 ft.

TEXAS PANHANDLE

Lipscomb County

Phil O'Neil's No. 1 Jacob Koch, NW SW Sec. 539, T.&T.C.R.R. Sur. S.D. 1,100 ft.

Ochiltree County

James R. Macon et al's No. 1 W. R. Norris, SW SE Sec. 212, Blk. 48, H.&T.C. Sur. T.D. 6,274 ft.; test sec. at 5,000 ft.; est. 6,000,000 cu. ft. gas on D.S.T.; tstg.; bailing 6,274 ft.; unloaded csg. at well and preparing to test increasing shows of oil and gas. C.O. and drlg. up junk; prep. rng. csg. to 5,000 ft.; est. 6,000,000 cu. ft. gas.

Potter County

Canadian River Gas Co.'s No. 1 City of Amarillo, in city limits just north of city. Drlg. 4,356 ft.

Sherman County

I.T.I.O. Co.'s No. 1 S. C. Bryant, C NW¼ Sec. 369, Blk. T-1, T.&N.O. Sur. Drlg 4,280 ft.

E. C. TEXAS WILDCATS

Anderson County

R. H. Williamson's No. 1 O. G. Rogers, Wm. Greenwood Sur., 6 mi. SW of Elkhart. Had gas blowout 4,380-90 ft.; under control; est. 30,000,000 cu. ft gas; flwg. through separator 5,407 ft. making 125 bbl. dist. dly.

Camp County

W. C. McGlothin's No. 1 Venters, S. Wright Sur., 3 mi. SE Leesburg. R.U. to D.D. to Pett. zone; prep. set csg. to test show in Pett. L. 7,943-90 ft.; had 47 ft. of sat. and por.; S.D. for title trouble at 8,087 ft.; well has not been opened.

Cherokee County

C. C. Lanier's No. 1 W. O. Reagan, W T. Smith Sur., 2½ mi. E of Mixon Drk.

R. D. Salisbury's No. 1 W. M. Shankle J. A. Manchaca Sur., 1½ mi. NE Chilton. P.B. 1,103 ft.; S.D.; W.O.

Shell Oil Co., Inc.'s No. 1 S. H. Manes, J. M. Musquez Sur., 4 mi. S of Reklaw. Drlg. 1,052 ft.

Falls County

City of Lott's No. 1 City of Lott, W. Gilmore Sur. Drlg. 2,531 ft.

M. Hays' No. 1 A. N. Taylor, F. Mahan Sur., 1 mi. NE of Lott. Topped Buda 1,175 ft.; W.O.C. 1,204 ft.

Fannin County

C. Newburn's No. 1 A. G. Allen, M Caldwell Sur., 7 mi. NE of Banham Laying wtr. lines.

Mrs. A. B. Powell's No. 1 Maude Barker, T. Harrison Sur., 9 mi. N of Bonham, SE cor. 42-ac. tr. Drlg. 10 ft.

Freestone County

C F. W. Young's No. 1 Ray Simmons, M. DeCantona Sur., 1½ mi. W of Simmsboro. Drlg. 1,640 ft.

Gregg County

Roger Lacy's No. 1 Lacy, S. P. Ford Sur., 3 mi. SW of Longview; deep Trinity gas test. Drlg. 3,847 ft.

Henderson County

W. R. Manning's No. 1 Brown, Thomas Meux Sur., 1 mi. SW of Rowe & Baker area. Loc.

Ed Parson's No. 1 J. E. Davis, 3 mi. S of Eustace and in K. H. Douglas Sur. Loc.

Houston County

Elmer Hay, Tr.'s No. 1 Starr Pope, J. Forbes Sur., 2 mi. S of Lovelady, NW cor. 162-ac. tr. Loc.

Kaufman County

W. H. McGee's No. 1 Rutland Savings Bnk., John Baker Sur., 2¼ mi. NE of Tulosa, S.D. 3,080 ft.

T. G. Shaw, Tr.'s No. 1 Angus Wynne, B. S. Newman Sur., 8 mi. E. Kaufman. lower Trinity test. Drlg. 2,667 ft.

Leon County

Alexander & Wilhite's No. 1 C. H. Mills, M. Copeland Sur., 2½ mi. E of Normangee. M.I.M.

Limestone County

Peyton Bros.' No. 1 Harris, P. Varella Sur. T. Pett. 5,549 ft.; cd. to 5,617 ft. with S.S.O.; D.P. stk. at 5,677 ft., T.D. pulled D.P. apart; S.D.O.

McLennan County

T. M. Smart's No. 1 J. W. Mann, C. O'Campo Sur., 4 mi. S of Waco. S.D. 1,327 ft.

Nacogdoches County

Melrose Oil Co.'s No. 2 C. N. Wilson.

Hall & Mora Sur., 300 ft. SE of No. 1 Wilson abd. at 2,100 ft. in Jan. Loc.

Navarro County

C. F. Carter's No. 1 Allen Eden, M. Shire Sur., 2 mi. NE of Angus. Balling. wtr.; S.S.O.; 1,201 ft.

M. M. Johnson's No. 1 Flemming, J. Smith Sur., 5 mi. SE of Corsicana. Drlg. 1,750 ft.

Guy Sitton's No. 2 R. D. Fleming, John Harris Sur., 450 ft. E of No. 1 dry hole. Bailed S.S.O. and S.D. for test at 1,625 ft.

W. H. Warren's No. 1 L. Grey, E. Powers Sur., 9 mi. SE of Kerens. S.D. 660 ft.; T.D.

Robertson County

Rhett Wilder's No. 1 Moise Cerf, J. Erwin Sur., 7 mi. S of Franklin. Drlg. 511 ft.

Rusk County

Jeff Bolton's No. 1 Hall Wood, J. I. Sanches Sur., 2½ mi. NW of New Salem. Lost circ. and skd. rig to start new hole; T. Wdbne. with sat. at 4,-145 ft.; S.S.O. 4,201 ft.; S.D. to test.

A. O. Whittington's No. 1 Kangerga Bros., Ign. Castro Sur., 9½ mi. N and slightly E of Pirtle. W.O.C. 300 ft.

Smith County

Carmerson Corp.'s No. 1 T. Simpson, R. Walter Sur., 3 mi. NE of Winona, SE cor. of 1,234-ac. tr. Loc.

Sun Oil Co.'s No. 1 E. B. Huddle, Wm. Dickerson Sur., 2 mi. S of discovery dist. producer in Chapel Hill area. third D.S.T. failed; may test again or may P.B. to Glen Rose L.; sat. drld. from 7,983-8,019 ft.; T. Pett. 7,930 ft.; T. Tr. Pk. 8,090 ft.; tstg.; T.D. 8,226 ft.; est. 5 B.O. with wash wtr.; prep. drill plug at 8,226 ft.; P.B. 8,183 ft.; making 25 bbl. dist. and 250,000 cu. ft. gas dly.; Rodessa section.

Trinity County

Gossage et al's No. 1 First Natl. Bnk., B. F. Wright Sur., S of Trinity. R.U. and S.D.

Van Zandt County

J. B. Daniels' No. 1 W. R. Odom, J. Garcia Sur., 4 mi. NE of Mabank. Drlg. 85 ft.

E. L. Shackelford's No. 1 E. J. Combs, J. Wright Sur., 3½ mi. NW of Grand Saline. S.D. 54 ft.

EAST TEXAS

(Border Counties)

Cass County

E. A. Stiller et al's No. 1 Glass, John Paxton Sur. R.U.

Harrison County

Fohs Oil Co.'s No. 1 R. L. Sypert, R. Hooper Sur. Set 10¾-in. csg.; W.O.C.

J. A. Hughes' No. 1 Taylor, H. McNutt Sur. T.D. 2,612 ft.; W.O.S.R.

Marion County—Other

John Coates' No. 1 Burr et al, 3,200 ft. NL, 350 ft. EL, John Reeves Sur. Cg. sh.&sd. 2,310 ft.

B. I. Daniels' No. 1 T. O. Livingston, G. Coore Sur. T.D. 2,330 ft.; W.O. csg.

T. B. Donnell's No. 1 E. W. Easterling, 330 ft. S, 1,200 ft. W. NE cor. 200-ac. tr., M. G. Nall Sur. T.D. 2,341 ft.; set 5½-in. csg. 2,234 ft.; W.O.S.R.

M. D. Fitzwater's No. 1 C. Moseley, 330 ft. SE cor. 100-ac. tr., W. H. Burton Sur. T.D. 1,529 ft.; dropped in cavity at 1,519 ft.; W.O.

H. T. Manning's No. 1 T. O. Livingston, G. Coore Sur. Pltg.

Sanders & Wycliffe's No. 1 M. E. Livingston, W. Coore Sur. Set 10-in. csg. 42 ft.; set 5½-in. csg. 2,306 ft., T.D.

Marion County—Rodessa

C. M. Beckett's No. 1 Perry, 466 ft. NW cor. Perry 126-ac. tr., C. Grayson Sur. Drlg. sh.&L. 5,315 ft.

Holcomb & Thomason's No. 1-A Madine, 400 ft. WL, 467 ft. NL, 33.6-ac. tr., A. D. S. Coy Sur. Set 9⅝-in. csg. 1,840 ft.; Hill sd. 5,979 ft.; Gloyd 6,092 ft.; set 6-in. csg. 6,118 ft.; perf. and acd. 6,096-6,112 ft. and tstd. est. 30,000,000 cu. ft. gas; will kill and sqz.

Shelby County

Earl McDaniels et al's No. 1 J. S. Swann, 470 ft. EL, 1,400 ft. SL, 100-ac. tr., Ann Gray Sur. T.D. 2,378 ft.; 9⅝-in. csg. 585 ft.

Superior Oil Co.'s No. 1 Pickering Lbr. Co., 990 ft. E, 330 ft. N, SW cor. Lot 4, W. J. Crane Sur. T. Midway 1,555 ft.; T. Cane River 1,850 ft.; T. Annona 1,955 ft.; T.D. 2,658 ft.; P.B. 2,-625 ft.; tstd. 5% oil and 95% mud and S.W.; recmtd. 2,615 ft.; 7-in. csg. set 2,595 ft.; oil sd. 2,618-21 ft.; pulled 1,910 ft. of 7-in. csg.; prep. P.B. 1,918 ft. and comp. as gas well.

WEST CENTRAL TEXAS DISTRICT

Brown County

A. M. Stalcup's No. 1 J. C. Morris, 900 ft. S, 700 ft. E lines of Morris tr. in John Goodwin and W. B. Hester Surveys. S.D. csg. 972 ft.

M. R. Staurd's No. 1 E. Hennigan, NW M.E.P.&P. Sur.; 1,000-ft. test. Drlg. 870 ft.

Callahan County

D. Fox and E. L. Dunn's No. 1 A. and G. Berry, NE pt. Sec. 78, B.O.A. Sur., 950-ft. test. Fsg. tools 910 ft.

N. D. Gallagher's No. 1 E. Grisson, SE pt. Sec. 2, Blk. 8, S.P. Sur. Spd. & S.D.

W. Lee's No. 1 H. W. Ross, 2,420 ft. W, 1,540 ft. S lines, Sec. 98, B.B.B.&C. C. Sur. Drlg. 1,280 ft.; (C.D.).

C. A. Redmond's No. 1 H. T. Moore, SE cor. NE Sec. 9, Blk. 6, S.P. Sur.; 2,000-ft. test. Drlg. 1,635 ft.

J. L. Reeves' No. 1 N. A. Estes, SW¼ Sec. 4, Blk. 8, S.P. Sur., 2½ mi. S of Bowles pool. M.I.M.

A. L. Thomas' No. 1 Abram, NW pt. Sec 1, B.B.B.&C. Sur. M.I.M.

Coleman County

Anzac Oil Corp.'s No. 1 McCord, 2,200 ft. E, 2,196 ft. S of B.B.B.&C. Sur. Drlg. 1,050 ft.

J. C. Ort's No. 1 Emet Walker, SE cor. Hicks Sur. W.O.C. 700 ft.

J. W. Quinn, Tr.'s No. 1 Duty & Stevens, SE cor. Sec. 25, H.T.&B. Sur.; 1,800-ft. test. Drlg. 100 ft.

Robertson & Bradford's No. 1 Morris, 330 ft. N, 1,582 ft. W lines, Blk. 2, G.H.&H. Sur. Prep. test; Gardner sd. topped at 3,530 ft. with sat.; awaiting official ga.

Comanche County

H. S. Bassart's No. 1 J. H. Tate, NW cor. J. M. Robinson Sur., Abst. 1170; 900-ft. test. Loc.

K. R. March's No. 1 P. Scott, SE cor. NE SW Sec. 25, Blk. 2, H.&T.C. Sur.; 1,-200-ft. test. S.D.R. 1,200 ft.

Coryell County

Kistler O. & G. Co.'s No. 1 Barnes, 360 ft. SE line, 3,700 ft. NE line of H. Farley Sur., 3 mi. NE of Gatesville; 2,500-ft. test. Drlg. 695 ft.

Eastland County

Dobbs Oil Corp.'s No. 1 Mrs. R. L. Poe, 1,320 ft. from S and E lines, of SE¼ Sec. 37, Blk. 3, H.&T.C. Sur. Drlg. 900 ft.

Dobbs Oil Corp.'s No. 1 Thomasson, S. H. Key Sur., 330 ft. from N, 846 ft. from E lines of 80-ac. tr. Drlg. 1,100 ft.

Hickok Prod. & Dev. Co.'s No. 1 Wright & Harrell, 2,485 ft. from east, 2,845 ft. from S lines of J. B. Hozle Sur., 4 mi. NE of Cisco. Rmg. 859 ft.

States Oil Corp.'s No. 1 V. N. Owens, NE Sec. 23, Blk. 2, T.&N.C. Sur. Drlg. in Ellenberger below 4,334 ft.

Steele & Black's No. 1 B. B. Poe, 150 ft. N and E lines, SE¼ Sec. 6, Blk. 2, H.&T.C. Sur.; 900-ft. test. Spd. and S.D.

Erath County

T. G. Jackson's No. 1 J. W. Taylor, Prater Sur., Abst. 1029, 4 mi. NE of Desdemona. Est. 15 to 20 B.O.P.D. at 3,-360-75 ft.; S.D. 3,395 ft.; not treated. fsg. tools 3,395 ft.

E. H. Young's No. 1 J. B. Mills, J. Harry Sur., 5 mi. NW of Dublin; 3,500-ft. test. M.I.M.

Hamilton County.

A. J. Caldwell's No. 1 W. W. Jones, 1,002 ft. from NE. 150 ft. from SE lines of W. H. Crowder Sur. Drlg. 2,160 ft.

Wallace & Wallace's No. 2 C. E. Lund, C S½ E 20 ac., N½ SW¼, R. J. Bailey Sur. 51. Csg. 300 ft.; S.D. csg. 3,265 ft.; T. Marble Falls 3,245 ft.; prep. test.

Jones County

Erin Pet. Co.'s No. 1 J. M. Caton, Sec. 4, Orphan Asylum Lds. Tstg. sat. 3,360-3,404 ft.; P.B. 3,390 ft.; flwd. only sul. wtr.; shot 15 qt.; no results; S.D.O. 3,404 ft.

J. E. Farrell's No. 1 F. B. Reid, NW¼ Sec. 31, D.&D. Sur.; 3,500-ft. test. T.D. 2,429 ft.; U.R. at 2,327 ft.

Humble O. & R. Co.'s No. 1 Ed Glift, 453-ac. tr. in E½ of Ambrose Crain Sur. 214. Drlg. 4,125 ft.

T. D. Humphrey's No. 1 Triplet, J. J. Hughes Sur. 201, 3 mi. NW Hawley field. Cook sd. 2,185-93 ft.; flwg. by hds.; est. 6 B.P.H.

Iron Mountain Oil Co.'s No. 1 I. F. Wiley, 330 ft. from S and E lines SW¼ Sec. 14, Deaf & Dumb Ld. Drlg. 2,459 ft.

Jones & Stasney's No. 1 B. C. Humphrey, SE cor. SW Sec. 192, B.B.B.&C. Sur., 1 mi. N of Avoca field. Loc.

Keeler's No. 1 Radford, SE¼ Sec. 20, Blk. 4, H.&T.C.R.R. Sur. Drlg. 1,877 ft.

Lewis Prod. Co.'s No. 1 M. T. Ramsey, NE cor. Sec. 80, Blk. 14, T.&P. Sur.; 2,000-ft. test. S.S.O. 1,718-21 ft.

M. R. Mead's No. 1 E. Hicks, SE cor. Sec. 5, O.A.L. Sur.; 3,500-ft. test. Loc.

W. I. Southern's No. 1 A. A. Hayden, G. Martinez Sur., S of Anson on west side of Prichard pool; 4,000-ft. test. Drlg. 2,069 ft.

Palo Pinto County

E. P. Wilson's No. 1 F. M. Watson, NW pt. of Sec. 10, Blk. 2, T.&P. Sur.; 3,-250-ft. test. S.D.R. 3,986 ft.

Parker County

Brown & Gardner Bros.' No. 1 Gilbert, T.&P. Sur., Abst. 1958. Tstg. gas; prep. D.D.

E. R. Marchman's No. 1 G. W. Keeling, F. Lidely Sur., Abst. 829, 1½ mi. W of Springtown; 3,500-ft. test. M.I.M.

Runnels County

J. E. North's No. 1 J. W. Reese, Day Ld. & Cattle Co., 2½ mi. S of McCullen. W.O.C. 2,030 ft.

Shackelford County

John E. Carson's No. 1 R. A. Elliott, 660 ft. S and E lines, Sec. 48, B.A.L. Sur.; 3,650 ft. test. Loc.

Fain-McGaha Oil Corp.'s No. 1 T. W. Lee, 1,320 ft. N, 220 ft. E lines, Sec. 38, Blk. 12, T.&P. Sur.; 1,200-ft. test. Loc.

Georgian Oil Corp.'s No. 1 Blacn ranch, C NE¼ of T.E.&L. Sur. 390, 10 mi NE of Albany; Ordovician test. Rng. 6-in. csg. 4,013 ft.

L. Mollenkopf's No. 1 Jemeyson, Sec. 489, T.E.&L. Sur.; 600-ft. test. Loc.

Swann & Gorsuch's No. 1 Sam Lazarus, SE SE Sec. 80, Blk. 13, T.&P. Sur. Drlg. 688 ft.

Stephens County

Guy Ewing's No. 1 Crudington, SE cor. T.E.&L. Sur. 1268, 5½ mi. S of Stribling field. Loc.

Jones Bros. Drlg. Co.'s No. 1 T.X.L., 660 ft. N and E lines SE Sec. 3, Blk. 3, S.P. Sur.; 4,050-ft. test. Drlg. 2,500 ft.

Panhandle Ref. Co.'s No. 1 Frank Magers, SE Sec. 1, Blk. 3, S.P. Sur., 1¾ mi. N of Fagg area. Prep. drill in 3,-842 ft.

Pitzer & West and Brazos-Young Oil Corp.'s No. 1 H. Compton, SW SW Sec. 9, O.A.L. Sur., 1 mi. SE of Loving pool; 3,600-ft. test. Drlg. 1,850 ft.

J. R. Tolbert's No. 1 W. L. Martin, NW cor. NE¼ Blk. 1335, T.E.&L. Sur., 1½ mi. SW of Fagg area. Spdg.

Andrew Urban, Jr.'s No. 1 T. T. Brooks, 150 ft. N and W lines of NE 40 ac. of 106-ac. tr. in Sec. 90, University Lds. Sur. Loc.

C. W. Waddington's No. 1 J. W. Smith, NW pt. of Sec. 56, L.A.L. Sur., 750-ft. test. S.D.O. 589 ft.

Throckmorton County

Falls Prod. Co.'s No. 1 J. C. Parker, SE pt. Sec. 990, T.E.&L. Sur.; 4,000-ft. test. Loc.

Normandie Oil Corp.'s No. 1 Travis Co. Sch. Lds., Sec. 37, Abst. 254; 5,500-ft. test. S.D. 2,100 ft.

Taylor County

Green & Owens' No. 1 J. Bettes, R. Ortiz Sur. 19; 2,500-ft. test. Loc.

Texas Pacific Coal & Oil Co.'s No. 1 N. A. Reidenback, 990 ft. from N and W lines of Lot 19, Lge. 146 County Sch. Lds. Drlg. 2,736 ft.

NORTH TEXAS WILDCATS

Archer County

W. H. Gant's No. 1 A. Vogtsberger, Sec. 3, G. E. Co. A-146 Sur.; 5,200-ft. test. O.S. 4,659-71 ft.; taking D.S.T.

Geo. B. Golden's No. 1 J. C. King, NE cor. Sec. 2422, T.E.&L. Sur. Loc.

Roeser & Pendleton's No. 1 J. R. Parkey, Sec. 11, Blk. 3, H.&T.C. Sur. (north outpost to Mankins deep pool). 6⅝-in. 4,891 ft.; L.S.O. 4,896-4,921 ft.; tested S.W.; T.D. 4,921 ft.; H.F.W.; S.D.O.

E. F. Scott's No. 1 York, SE cor. SW¼ Sec. 1861, T.E.&L. Sur. Spd. & S.D.

Baylor County

Paul B. Scott et al's No. 1 C. H. Farr, Sec. 228, T.&N.O. Sur.; 3,100 ft. test. Drlg. 1,450 ft.

Hattie B. Madden's No. 1 J. J. James, 2,000-ft. test located 1,650 ft. from N and 150 ft. from E lines of Sec. 150, T.&N.O.R.T. Sur. S.D. 1,250 ft.

Clay County

Fulwood, Johnson & O'Connor's No. 1 R. L. Oliver, Sec. 2646, T.E.&L. Sur.; 4,100-ft. test. Drlg. 3,200 ft.

Walter Gant's No. 1 Edwards, S. C. Beldon Sur., Abst. 12, 4 mi. E of Henrietta. W.O.S. to C.O.

Alexander Goldsmith's No. 1 Republic Nat. Gas Co., 312 ft. N, 495 ft. W lines of Blk. 14, Parker Co. Sch. Ld. Sur., 1 mi. S of town of Petrolia; 4,500-ft. test, T.D. 2,572 ft.; S.D.O.; T. grnt. 2,-522 ft.

Shell Oil Co., Inc.'s No. 1 Davis, Sec. 93, J. H. Belcher Sur. O.W.D.D.; S.D.O. 5,136 ft.

Staley Oil Co.'s No. 1 D. J. Percifield, Sec. 37, Belcher subd.; 5,000-ft. test. Spd. and W.O.R.

Carlos Wagner's No. 1 L. C. Thaxton, 3,630 ft. S, 330 E lines of 301-ac. tr., W.C. Donley Sur., Abst. 129, Sec. 4; 5,000-ft. test. Spd. and S.D.

Cooke County

Cranfill & Staley's No. 1 S. H. Peery, SW B.B.B.&C. Sur., Abst. 145. S.D. 2,505 ft.

C. E. Marshall et al's No. 1 Mrs. H. M. Stork, Sec. 13, B.B.B.&C. Sur. A-155; 5,200-ft. test. Drlg. 1,150 ft.

Cottle County

J. E. Burns et al's No. 1 J. E. Moss, Sec. 5, Blk. L, A. Forsythe Sur. Jnkd. 225 ft.; skd. 20 ft. S; S.D. 1,823 ft.

Denton County

Jones Drlg. Co.'s No. 1 H. Chapman, L. Moore Sur., Abst. 824. T.D. 1,800 ft.; P.B. 1,634 ft.; to perf. csg.; O.S. 1,609-15 ft.; P.O.P.

Shooks & Finnell's No. 1 Sanders, L.S.O. 2,013-21 ft.; tstg.

Foard County

Domain Oil Co.'s No. 1 Wilson, Marshall Univ. Sur. Spd. and S.D.

Ohio Oil Co.'s No. 1 M. E. Rasberry, NE cor. Sec. 26, S.P. Sur., 5,000-ft. test. S.D.O. 5,004 ft.

Hardeman County

Norris & Gilbert's No. 1 Robert Weekley, SW SE Sec. 87, Blk. 16, H.&T.C. Sur. Drlg. 2,732 ft.

Jack County

Harper Pet. Co.'s No. 1 J. W. Kinder, SW¼ Sec. 2667, T.E.&L. Sur., Abst. 762. T.D. 2,160 ft.; S.D.

H. R. Smith's No. 1 I. G. Yates, SW cor. John Holderman Sur., 6 mi. NW Jacksboro. Drlg. 1,700 ft.

Montague County

Seitz, Comegy & Seitz' No. 1 King, 1,903 ft. W, 330 ft. N lines of SE¼ E. B. Wooten Sur., Abst. 480. Drlg. 2,996 ft.

W. H. Gant and Continental's No. 1 J. L. Brown, Sec. 58, E.T.R.R. Sur. 6⅝-in. 6,843 ft.; brkn. sdy. L. S.O. 6,843 ft.; treat. 8,000 gal. acd.; test showed O.& G. 7,036-56 ft.; T.D. 7,333 ft.; rng. 5⅛-in. lnr. 6,843-7,333 ft.; fsg. swb. and 5,800-ft. line; set retainer 5,500 ft.; perf. 52 shots 6,000-6,400 ft.; shot 10 qt. 6,470-80 ft.; no results; shot 20 qt. 6,300-10 ft.; 1,000 ft. mud, no oil; set plug 6,080 ft.; tstg.

Gibson & Jenning's No. 1 Holt, NW cor. Blk. 36, Kaufman C.S.L. Sur. Loc.

Oppman & Holtsclaw's No. 1 P. J. Blackburn, 1,400 ft. W, 567 ft. S line of Blk. 1, S.A.&M.G. Sur., 3 mi. SE of Montague. Loc.

Wm. J. Payne's No. 1 T. M. Baker, NW¼ Lot 42, W. J. Wells Sur., Abst. 844, 5,000-ft. test. Drlg. 5,300 ft.

W. H. Peckham's No. 1 Dr. Lawson, N. Kimbro Sur., Abst. 405. Loc.

Ramsey Pet. Corp.'s No. 1 W. H. Magee, A. C. Davis Sur., just outside of town of Montague. Drlg. 4,140 ft.

Sinclair Prairie's No. 1 T. H. Milam, Lot 54, A. Beason A-20 Sur.; 6,000 ft. test. Loc.

F. K. Williford's No. 1 W. M. Goldsmith, C of Blk. 13, Wallace Sur., in Bonita townsite. Loc.

Wichita County

B. C. E. Dev. Co.'s No. 1 F. P. Warren, NE cor. W. J. Smith Sur. Drlg. 1,300 ft.

S. H. Fagadau's No. 1 A. D. Potts, NE cor. Sec. 4, Blk. 7, H.&T.C. Sur. Basal 3,989-4,035 ft.; tstg.

Wilbarger County

Amerada Pet. Corp.'s No. 1 B. Goodpasture, Sec. 35, H.&T.C. Sur., Blk. 15, 8,000-ft. test. Drlg. 3,960 ft.

O. M. Stidham & Son's No. 1 C. D. Watts, Sec. 64, H.&T.C. Sur., Blk. 15.; 6,000-ft. test. Loc.

Young County

F. T. Conner's No. 1 Wright McClatchey est., SW cor. Sec. 284, T.E.&L. Sur. Drlg. 4,080 ft.

H. W. Dyer's No. 1 M. G. Cheney, M. L. Terry Sur., Abst. 1261. S.D. 1,035 ft.

K. R. March's No. 1 Ed Burton, NE cor. Blk. 99, J. A. True Sur., Abst. 1640, 4 mi. SE Graham; 4,250-ft. test. S.D.; 6⅝-in. 3,804 ft.

A. T. Strong et al's No. 1 E. C. Stovall, Sec. 2946, T.E.&L. Sur. (4,800-ft. test). T.D. 4,805 ft.; 5½-in. csg. 4,728 ft.; perf. csg. 24 shots 4,660-86 ft.; tstd. S.W.; cmtd.; tstg. through csg. perfs. 4,610-80 ft.

Canadian Fields

(Continued from Page 96)

been located in LSD 14, Section 8-18-2w5, immediately west of No. 3, which is now nearing the lime, and ½ mile west of No. 1 producer. Northwest Co. is a subsidiary of Imperial Oil, Ltd., and holds the entire Section 8-18-2w5 on lease from Hudson's Bay Co. This is the most westerly location yet made in the extreme south end of the field, and is in line with the company's policy of systematically testing the acreage south and west of its proven production. About a mile farther south, Brown Oil Corp.'s No. 6 drilled into a fault at 3,040 ft. and was abandoned at 4,517 ft., since which time Northwest-Hudson's Bay No. 3 has been the only active test in the south end of the field.

Tests in the Foothills

On the Brazeau structure in the northern foothills west of Edmonton, Home Oil Co.'s No. 1, LSD 16, Section 7-43-17w5, is in the Blairmore formation below 7,234 ft. Test recently resumed after a shut down since last October when a gas flow in the McDougall-Segur sand at 6,488 ft. caused a difficult fishing job. The Madison lime is expected around 8,000 ft.

In the Ram River-Clearwater area, Ram River Oils' No. 2, Section 1-37-11w5, has derrick up and equipment on the ground.

In the Sheppard Creek area, Alberta Pacific's No. 1, LSD 6, Section 7-16-2w5, is resuming after running 8-in. casing to bottom at 4,331 ft.

Oil Core in Holmes County Interesting Mississippi

By GEORGE WEBER

JACKSON, Miss., Apr. 15.—The coring of an oil sand in a Holmes County wildcat, and completion of the new Yazoo County discovery at Pickens marked the week's most important developments in Mississippi. The Holmes County show, although testing mud, is still of considerable interest, as operators core ahead.

Mississippi's second commercial oil field, named the Pickens field, of Yazoo County, became a reality this week with completion of Kingwood Oil Co. and Exchange Oil Co.'s No. 1 R. E. Wilburn, a Eutaw formation producer. Immediate result was a very active leasing and royalty play for several miles surrounding the well in all directions. Adding to this activity is the fact that geophysical information does not check as to the high of the structure, so that possible trends in all directions are being played. The completion of the Pickens test, coupled with the show in Holmes County, is inciting much interest in the Cretaceous area of Mississippi.

The Pickens well is believed to be an edge test by some, although diminishing salt-water production throughout the first few days' flowing would tend to refute it. The well is not outstanding as a producer up to the present. Its greatest importance is that it has proven commercial production possible on small geophysically discovered structures, opening better prospects for scores of similar structures already found throughout the state.

In the Kingwood well, the Eutaw producing sand was located at 4,876-85 ft. by electrical log, with a total depth by steel-line measurement of 4,889 ft. The Eutaw was topped at 4,670 ft., which is about normal structurally with respect to other tests drilled in the county. A string of 7-in. casing was set at 4,873 ft., plugs drilled, and 2-in. tubing run to 4,887 ft. The well would not wash in at first, so swabbing through the tubing was undertaken, and the well made 815 bbl. of fluid, consisting of about 25 per cent salt water in the first 24-hour period.

A later gage of 15½ hours showed salt-water percentage decreasing, with 660 bbl. of oil and 104 bbl. of salt water, with casing pressure of 120 lb., and tubing pressure of 15 lb., the well flowing on open tubing. Upon shutting in for storage, casing pressure built up to 450 lb. Net oil produced in 55½ hours was 2,024 bbl., with a trace of basic sediment and an undetermined quantity of salt water.

Exchange Oil Co., owner of a half interest in the test and acreage with Kingwood, plans to take the oil, to be run possibly to Sinclair refineries. The Illinois Central Railroad, running ¾ mile southeast of the well, may lay a spur line for a loading rack, or, if production justifies, a pipe line may be laid to Vicksburg for Mississippi River barge movement. No offset acreage is held by other operators, and although the possibility of 10-acre spacing is being considered, later study may bring spacing, either on a 20 or 40-acre pattern.

Holmes County Test

About 15 miles north of Pickens and 4 miles west of Durant, Hawkins & Mathews' No. 1 Ellis, C NE SW Section 18-14n-4e, took two 5-ft. cores late last week end; the first, at 3,913-18 ft., showing recovery of 8 in. of sand, some stain and slight odor of oil, and the second core at 3,918-23 ft. showing 8 in. of the same grade of sand. A packer was set at 3,901 ft., and on a drill-stem test, a recovery of 32 ft. of mud was reported, with bottom-hole pressure running 2,100 lb. Operators were reported coring ahead the first of the week. This test, scheduled for 5,000 ft. and surrounded by many structural prospects in Holmes and neighboring counties, will be watched with interest.

Wildcatting

New wildcats were either staked or begun in several Mississippi and Alabama counties during the week. In Attala County a rig is being moved from Alabama to F. R. Jackson's No. 1 Federal Land Bank in Section 29-16n-9e for a 4,500-ft. test on a 20,000-acre block.

Clarke County's important test, Arkansas-Mississippi Oil Co.'s No. 1 State was last reported shut down for repairs at 2,865 ft. after topping the Selma chalk at 2,595 ft., believed high. The county is gaining another wildcat with completion of a contract between Arkansas-Mississippi Oil Co. and J. T. Roberts, Shreveport drilling contractor, for a 7,000-ft. test on a large block northeast of that being drilled. The tentative location is in Section 35-3n-17e.

In Humphreys County L. B. Allen's No. 1 Reid Clarke is rigging up and in Oktibbeha County, Oktibbeha Oil & Gas Co.'s (Nick Shiarella) No. 1 L. L. Murphy is also rigging up. Wayne County enters the active list with rig moving into Hill & Hill and W. L. Stewart's No. 1 Kalmia Realty Co., Section 5-7n-9w. A new Hinds County wildcat on the Raymond structure, Royal Oil & Gas Co. and others' No. 1 Hinds County land, NE SW NE Section 33-5n-2w, is rigging up for a 6,500-ft. test on a 13,000-acre block.

In Issequena County the former W. E. Hall's No. 1 Irby Charping has been taken over by Walter G. Ray Drilling Co. of Shreveport and heavier equipment is being moved in to resume drilling below conductor casing. Love Petroleum Co.'s No. 1 Parkinson, Section 23-9n-1w, Madison County, is rigging up for a 5,300-ft. test.

In addition to the new wildcats staked and rigging up, 12 wildcats are actively drilling in Mississippi. In Choctaw County, Alabama, Union Producing Co. has taken over the former Joe Modisett and others' No. 1 McCorvey, Section 20-9n-2w, and is reaming to bottom at 7,520 ft. to deepen.

Tinsley

Tinsley gained three new producers during the week, making a total of 38 wells. Effective April 7, Standard Oil Co. of Louisiana announced a reduction in purchases in the field, with purchases limited to 150 bbl. per well per day, which will cut former purchases approximately 50 per cent. The reduction is apparent from the field's daily average production of 7,655 bbl. for the week ending April 10. Estimated potential production is placed at 29,000 bbl. daily for the 38 wells.

MISSISSIPPI COMPLETIONS

Pickens—Yazoo County

Kingwood Oil Co. and others' No. 1 R. E. Wilburn, 330 ft. NE cor. Section 31-12n-3e, 875 bbl. oil and some salt water, through open tubing, shut-in casing pressure 450 lb., oil sand (Eutaw) 4,876-85 ft., set 7-in. casing 4,873 ft., total depth 4,889 ft.

Tinsley—Yazoo County

Hassie Hunt's No. 4 J. C. Johnson, C SW SE Section 11-10-3, 820 bbl., ⅝-in. choke, Woodruff sand 4,427-88 ft., perforated 4,440-88 ft., total depth 4,807 ft. Slick-Urschel Oil Co.'s No. 2 Slick, 760 ft. north 560 ft. west SE cor. Section 2-10-3, 960 bbl., ⅝-in. choke, Woodruff sand 4,788-4,817 ft., perforated 4,788-4,810 ft., total depth 4,839 ft. Union Producing Co.'s No. 2 Herron, C SE SW Section 11-10-3, 1,800 bbl., ½-in. choke, Woodruff sand 4,533-4,605 ft., total depth 4,950 ft., plugged back 4,879 ft., perforated 4,540-70 ft. and 4,585-4,600 ft.

MISSISSIPPI

Attala County

F. R. Jackson's No. 1 Federal Land Bank, 410 ft. S, 620 ft. E NW cor. NW SE Sec. 29-16n-9e. M.I. rig.
Kosciusko Oil Co.'s No. 1 Jones, 600 ft. NW cor. Sec. 5-15n-9e. Loc.
P. & M. Oil Co.'s No. 1 J. A. McMillin, 300 ft. SW cor. SE SE Sec. 26-13n-5e. Spd. to 25 ft.; R.U.

Choctaw County

Garland Anthony et al's No. 1 Ballard, SE cor. Sec. 8-18n-1e. T.D. 22 ft.; S.D.

Clarke County

Ark.-Miss. Oil Co.'s No. 1 State. C SE SE Sec. 16-2n-16e. T. Selma chalk 2,595 ft.; T.D. 2,865 ft.; S.D. repairs.

Copiah County

G. C. Koch's (former Triangle Drilling Co.) No. 1 W. W. Broome, 153 ft. SW cor. SW SE Sec. 1-10n-8e. Drlg. sdy. sh. 2,895 ft.
S. J. Wheeless' No. 1 Columbia Mutual Life Ins. Co., C NE NE Sec. 19-1n-3w Set 10¾-in. csg. 861 ft.; drlg. bl. sh. 6,970 ft.

Hinds County

Crescent Oil Mill's No. 1 fee, E side Mill St., fire zone No. 3, City of Jackson, Sec. 3-5-1e. Set 8⅝-in. csg. 822 ft.; Set 5½-in. csg. on bttm.; drld. out to 2,468 ft.; reported tested 50,000 cu. ft. gas and water; T.D. 2,468 ft.; dpnd. to 2,470 ft.; S.W. incr.; tools moved out; S.D.; W.O.; H.F.W.
Royal Oil & Gas Co. et al's No. 1 Hinds County Land, NE SW NE Sec. 33-5n-2w. R.U.

Holmes County

Hawkins & Mathews' No. 1 Ellis, C NE SW Sec. 18-14n-4e. Drlg. chlk. 3,650 ft.

Humphreys County

L. B. Allen's No. 1 R. Clarke, 300 ft. N, 400 ft. E, SW cor. Sec. 4-13n-4w. R.U.
Fohs Oil Co.'s No. 1 Holaday, C SW SW Sec. 5-13n-3w. Spd.; set 10¾-in. csg. Drlg. chlk. 4,280 ft.
J. B. Moncrief et al's No. 1 State, 2,490 ft. E line, 150 ft. N line of Sec. 9-15n-2w. Spd. 40 ft.; S.D. to R.U.

Issaquena County

Exchange Oil Co.'s No. 1 S. D. Gwin, 2,170 ft. S line, 1,470 ft. E line, Sec. 6-16n-1e. Loc.
Exchange Oil Co.'s No. 1 B. Russell, NE cor. NE SE Sec. 32-15n-2e. Loc.
W. G. Ray Drlg. Co.'s No. 1 Irby Charping, approx. C NE NW Sec. 29-10n-8w. Set 13⅜-in. csg. 145 ft.; S.D.; M.I. heavier equipment.
Locke & Mellard's No. 1 W. Gary, 600 ft. SE cor. NW¼ Sec. 14-9n-6w. Loc.
A. C. Varner's No. 1 P. S. Jones, Sec. 27-15n-1e. Loc.

Itawamba County

G. C. Grasty et al's No. 1 Ky. Lbr. Co., 1,320 ft. E, 660 ft. S, C Sec. 7-10s-10e. Twisted off D.S.; skd. 24 ft. S and spd.; set 10¾-in. csg. 170 ft.; S.O. 1,500 ft.; T. Trenton L. 1,600 ft.; tstd. sulf. wtr. 2,793-97 ft.; U.R. to run csg. 2,801 ft.

Kemper County

M. R. Crabb et al's No. 1 W. T. Caldwell, NW SE Sec. 25-9n-15w. 10¾-in. csg. 86 ft.; set 6-in. csg. 1,320 ft.; T.D. 1,640 ft.; acid. with 1,000 gal.; S.D.; W.O.

Lamar County

Miss.-La. Oil Synd.'s No. 1 Simmons, 1,020 ft. N, 56 ft. W, SE cor. NE¼ Sec. 32-3n-14w. S.D. 920 ft. (cor. T.D.).

Madison County

E. L. Foster's No. 1 Haffey, NE cor. 8⅛ Lot 5, Sec. 8-10n-5e. Drk.
Ralph Johnston's No. 1 Minerva Young et al, C SE NE Sec. 32-11n-4e. Loc.
Ralph A. Johnston's No. 1 Ray & Dinkins, C SW SW Sec. 14-10e-3w. Drlg. 4,285 ft.
Love Pet. Co.'s No. 1 Parkinson, C NW NE Sec. 23-9n-1w. R.U.

Monroe County

Willmut G. & O. Co.'s No. 1 Roberts, NW¼ Sec. 18-13s-17w. D.S.T. 2,410-30 ft.; Amory gas zone, dry; S.G. 2,844-52 ft.; hard cmtd. sd., odor oil 2,821-72 ft.; D.S.T., no results; ran Schlumberger and set 7-in. csg. 2,810 ft.; T.D. 2,879 ft.; flwd. small amt. gas and bailed to bttm.; shut in and opened well intermittently; no pressure inc.; shot with dynamite; built up pr. 100 lb.; W.O.

Oktibbeha County

Oktibbeha Oil & Gas Co.'s (Nick Shiarella) No. 1 L. L. Murphy, NE NE NW Sec. 28-17n-12e. R.U.

Pike County

S. R. Crouch's No. 1 Cupit, 360 ft. N, 660 ft. W, SE cor. NE SW Sec. 25-2n-7e. Set 6-in. csg. 729 ft.; S.D. 3,390 ft.

Prentiss County

Home Dev. Co.'s No. 1 Mrs. A. Allen. Sec. 8-7s-9e. S.D. 1,760 ft.; reported S.O. 1,520 and 1,750 ft.

Sharkey County

Eureka Pet. Co.'s No. 1 W. H. Cooper, 1,980 ft. S, 660 ft. W, NE cor. Sec. 13-14n-4w. Set 10¾-in. csg. 571 ft.; T.D. 3,641 ft. chlk.; reamed down and S.D. repairs.

Simpson County

Cleve Love et al's No. 1 N. E. Garner, 300 ft. N and E of C Sec. 1-10n-17w. O.W.D.D.; O.T.D. 3,145 ft.; set 10¾-in. csg. 871 ft.; T.D. 6,030 ft.; stuck drill stem 2,500 ft.

Stone County

H. I. Morgan's No. 1 Dantzler Lbr. Co., NW SE Sec. 8-4s-12w. Cg. 3,000 ft.

Warren County

H. C. Cummings et al's No. 1 T. H. Morrissey, C E½ W½ NE Sec. 8-17n-2e. Drlg. Eutaw form. 5,280 ft.

Wayne County

Hill & Hill and W. L. Stewart's No. 1 Kalmia Realty Co., C SW NW Sec. 5-7n-9w. Set 16-in. csg. 30 ft., spd. mch.; R.U.

(Continued on Page 119)

CRUDE-OIL PRICES IN REPRESENTATIVE FIELDS

Complete crude-price schedules are now being published in the first issue of each month. The last complete schedule was published in the April 11 issue. All changes in crude-oil-price schedules will be published completely in the first issues following the announcement of the changes. Following are representative crude-price schedules in barrels (42 gal.):

East Texas	$1.10
Conroe	1.27
Tepetate, Louisiana	1.03
Smackover, Arkansas, heavy	.73
Illinois basin	1.05
Pecos County, Texas	.78
Lance Creek, Wyoming	.77
Bradford, Pennsylvania	2.75

Gravity Schedules

Top prices include all gravities above grades designated, and low prices include all gravities below grades designated:

	Signal Hill, California*	Oklahoma, Kansas	Gulf Coast Texas
14-14.9	$.065	....	....
15-15.9	.65	....	....
16-16.9	.65	....	....
17-17.9	.65	....	....
18-18.9	.65	....	....
19-19.9	.69	....	$0.86
20-20.9	.73	$0.70	.88
21-21.9	.78	.72	.90
22-22.9	.82	.74	.92
23-23.9	.86	.76	.94
24-24.9	.90	.78	.96
25-25.9	.95	.80	.98
26-26.9	.99	.82	1.00
27-27.9	1.03	.84	1.02
28-28.9	1.07	.86	1.04
29-29.9	1.10	.88	1.06
30-30.9	1.14	.90	1.08
31-31.9	....	.92	1.10
32-32.9	....	.94	1.12
33-33.9	....	.96	1.14
34-34.9	....	.98	1.16
35-35.9	....	1.00	1.18
36-36.9	....	1.02	1.20
37-37.9	....	1.04	1.22
38-38.9	....	1.06	1.24
39-39.9	....	1.08	1.26
40-40.9	....	1.10	1.28

*Effective February 1, 1940.

East Texas Looks Foward to Somewhat Dubious Future

(Continued from Page 25)

Total salt-water production had risen to a reported 200,000 bbl. daily, according to operators' estimates given the commission. This total, considered conservative at that time, has by now possibly risen in excess of 260,000 bbl. daily. This major problem directly affects lifting, plug-back work, treating, abandonments and salt-water disposal, the latter factor approaching proportions calling for emergency action.

Plug-Back Work

The decided increase in daily water production per water well, from 34.41 bbl. in July to 45.11 bbl. in November illustrates the need for corrective work on water wells. Plug-back work is continuing at relatively the same pace in the face of an increasing need for it. Although only a fraction of plug-back jobs is reported in the commission's water survey, since reports lag actual work by several months in order that results may be safely determined, a total of only 84 wells were reported plugged back in 10 months of 1939, as against 109 in all of 1938. Of the 84 wells included in the 1939 reports, 50 showed complete water shutoff, 25 showed partial water shutoff and the remaining 9 wells were not helped by the work.

Successful plug-back work is limited in its application to wells with sufficient oil section above the water sand, warranting the expenditure of reworking. The cost is in turn dependent on the type of job undertaken. Pressure-squeeze jobs and dump-bailer plugging with all intermediate types have their correct application among the widely varying conditions found in East Texas water wells. No outstanding developments in plugging back, either from the standpoint of volume of such work, or methods employed, can be reported for the field during the past year.

Artificial Lift

With an estimated 6,300 wells on the pump at the present time, the trend toward artificial lift continues gradually. Improved equipment of all types, from heavy units in the salt water areas of the west side to light rigs, back-side crank and central powers along the east edge, is finding a widely varying proving ground. Increased engineering application, both by operators and equipment manufacturers, is cutting operating expense and facilitating installation of lighter units in many cases to care for the limited allowable production.

An important factor in cutting-equipment investment on the west side of the field, has been the practice of reducing pump submergence.[1] Dynamometer studies on individual units, central powers and back-side crank units have netted operators considerable savings in power, investment and maintenance.

Treating

Salt-water encroachment is necessitating constantly additional treating both in the field and in refineries charging west side crude. This factor, together with the trend toward crude purchases on a gravity scale has brought to the operators' attention the necessity of gravity conservation in heat treating. Following the crude-price cut last year, two large buyers in the field adopted a gravity basis, paying $0.98 for crude of 34 gravity and below, with a 2-cent differential to a top of $1.10 for 39 gravity and over.

The necessity for maintaining gravity facing operators served by gathering systems of those buyers has directed their attention to the use of unitized treating systems carrying pressure, and facilitating reabsorption and recondensation of light ends otherwise lost on the lease.[2]

The greatest immediate problem attending the increased volume of salt-water production is its proper disposal. Evaporation pits still care for the bulk of salt water. An important development, and perhaps the solution to the future problems of many leases, is the return of the salt water to the Woodbine and other sands. During the past year, several companies have installed injection units. Beginning in June 1938, when Sun Oil Co. initiated injection in a well west of the south end of the field, injection volumes have risen gradually to the present average of 500,000 bbl. monthly. Following Sun Oil Co. in this development were Tide Water Associated Oil Co., Humble Oil & Refining Co., Stanolind Oil & Gas Co., Sinclair Prairie Oil Co., Texas Co., Ohio Oil Co., Gulf Production Co. and British American Oil Co.

Preliminary research work on methods of handling salt water covered closed and open systems, injection through separate wells, and through producing wells, using packers. The method which has evolved as the most widely adopted employs an open system. The salt water is completely aerated, and the precipitant formed by contact with air is removed by settling and filtering.

To March 1, 1940, a cumulative total of 3,504,510 bbl. of salt water had been returned to the sand by injection methods. The initial operation of nine wells in 1939 swelled the volume disposed to half a million barrels by the end of the year. With two other projects due to begin shortly, salt-water injection may be expected to continue its present increase. As shown in Fig. 3, an estimated total of 145 wells making an average of 120 bbl. of water daily, was being served by this disposal method.

East Texas Disposal Plan

As a result of the state's suit against East Texas operators regarding proper disposal, a general plan for disposal of salt water was agreed upon by operators and representatives of the attorney general's office, the State Health Office, the Board of Water Engineers, and the Game Commission. The plan outlines the following points:

1. To provide adequate pits for salt-water storage.
2. To contract with salt-water holding companies or conservation districts.
3. To provide injection wells adequate in capacity to dispose of salt water on leases, with storage to allow for shutdowns.
4. To employ any other method or combination of methods to effect the objectives and intendments of the plan.

The plan requires each lease owner producing water to employ a registered engineer to prepare and submit plans and specifications for taking care of salt-water production on his lease. After any necessary corrective work has been made on disposal units to conform to the plan the engineer must file a statement with the state to the effect that the improvements meet the necessary requirements. This statement includes a plat of each lease, showing location of all wells, lines, pits, injection wells, and other pertinent data. The plan further provides for periodic inspection by field engineers appointed by the state to administer the disposal plan.

Bibliography

1. Mayfield, M. L., Recent Development in Pumping Wells in the East Texas Field, The Oil and Gas Journal, Dec. 14, 1939, p. 44, Dec. 21, p. 41.
2. Erwin, R. W., Gravity Conserva ion for East Texas, presented before the East Texas Chapter, A.P.I., Oct. 10, 1939.

TABLE 2—RECENT FIELD DEVELOPMENT

Month—	Wells— New	Wells— Abd.	Total prod. wells as of 1st of month
1938—			
January	206	3	24,269
February	190	10	24,448
March	189	21	24,627
April	198	17	24,816
May	180	6	24,965
June	127	13	25,161
July	125	3	25,270
August	130	13	25,381
September	103	18	25,491
October	87	13	25,572
November	88	25	25,642
December	79	22	25,698
1939—			
January	92	29	25,768
February	52	18	25,801
March	17	28	25,805
April	23	20	25,795
May	38	22	25,817
June	34	10	25,841
July	27	21	25,873
August	20	18	25,890
September	16	20	25,904
October	29	26	*25,905
November	16	30	25,983
December	17	27	25,988
1940—			
January	33	20	25,976
February	23	30	25,980

*Estimated.
Total producing wells as of the first of each month excludes wells temporarily off production.

TABLE 1—YEARLY PRESSURE-PRODUCTION DATA

Year—	Avg. b.hp. Dec. 31 (lb. /sq. in.)	Yearly pressure decline (lb./sq. in.)	Total oil production (mil. bbl.)	Est. total water withdrawals (mil. bbl.)	Total corrected vol. displacement in reservoir (mil. bbl.)	Pressure drop per million bbl. displaced (lb./sq. in.)	Pressure drop per million bbl. oil prod. (lb./sq. in.)
1935	1204.1	...	...	...	...	...	...
1936	1174.6	29.5	164.789	10.980	141.163	.209	.179
1937	1126.5	48.1	169.238	23.615	157.313	.306	.284
1938	1106.3	20.2	148.319	37.220	154.392	.131	.136
1939	1065.6	40.7	146.970	60.000	176.106	.231	.280

TABLE 3—TRENDS IN WATER PRODUCTION, PUMPING, GAS LIFT, AND WATER WELLS

	1936	1937			1938				1939			
	October	January	April	October	January	April	July	October	January	April	July	November
Flowing wells making water	942	1,071	1,005	1,047	978	1,044	886	843	991	1,031	933	873
Pumping wells making water	850	1,042	1,518	1,096	2,389	2,615	2,617	2,780	2,830	3,014	3,047	3,197
Pumping wells not making water	1,619	1,860	2,145	2,350	2,521	2,544	2,884	2,793	2,794	2,772	2,793	2,871
Total pumping wells	2,469	2,902	3,663	3,446	4,910	5,159	5,501	5,573	5,624	5,786	5,840	6,068
Air and gas-lift wells making water	63	71	72	123	97	121	149	154	200	221	341	335
Air and gas-lift wells not making water	222	243	286	307	351	343	357	366	403	369	352	385
Total air and gas-lift wells	285	314	358	430	448	464	506	520	603	590	693	720
Wells making Woodbine water	1,827	2,151	2,500	3,026	3,462	3,770	3,657	3,746	3,984	4,244	4,312	4,405
Wells making water from other sources	28	33	35	19	13	10	6	31	37	22	9	23
Total wells making water	1,855	2,184	2,595	3,045	3,475	3,780	3,662	3,777	4,021	4,266	4,321	4,428
Daily water withdrawals:					85,120	91,830	103,128	106,931	122,765	132,811	148,666	199,701
Woodbine	42,718	46,250	53,314	75,241	13	1	8	33	42	47	12	37
Other water	72	77	44	28	85,133	91,831	103,136	106,964	122,807	132,858	148,678	199,738
Total daily water withdrawal	42,790	46,327	53,358	75,269	24.49	24.29	28.16	28.32	30.54	31.14	34.41	45.11
Av. daily water withdrawal per water well	23.07	21.42	20.56	24.72								

Personal Paragraphs

A. N. MacKENZIE, vice president and general manager of Ganzo Azul in Peru, left Los Angeles, Calif., in April via Pan American Airways, flying down the west coast to Panama, at which point he boarded a steamer for Callao, the seaport of Lima, Peru.

THOMAS A. ROGERS, who has been a research engineer at the Shell Oil Co., Inc., motor laboratory at Martinez, Calif., refinery, has been transferred to the laboratory of Shell Development Co.

W. B. GOODWIN left last month for Arabia to assume his duties with the drilling department of the California Arabian Standard Oil Co.

JACK WISE, formerly in the land department office of Magnolia Petroleum Co. at Tyler, Tex., has been transferred to the scouting department of the company's offices in Houston, Tex.

DR. C. D. LOWRY, JR., of Universal Oil Products Co., Chicago, addressed members of the Ark-La-Tex chapter, Western Petroleum Refiners Association last week on "Newer Uses of Petroleum Olefins."

A. FRED SCHUBERT, president of Sentinel Oil Corp., Dallas, Tex., has formed a new company to be called the Schubert Oil Co. Headquarters are in Dallas and the firm will manage production in eastern Texas.

GEORGE P. LIVERMORE, independent producer and drilling contractor in West Texas, has formed a new drilling company known as the Livermore Development Corp. Headquarters will be in Fort Worth, Tex., and other incorporators with Livermore were CARLISLE CRAVENS and WARREN SCARBOROUGH.

J. L. ANDREWS, manager of production for Sarawak Oilfields, Ltd., is now in California concluding a several months' tour through the American oil fields. He is planning to leave with his wife and daughter on May 4 for San Francisco, Calif., Vancouver and thence to his headquarters at Miri, Sarawak, Netherland East Indies.

A. P. BOWSHER, of Calgary, has been appointed attorney for Alberta for Pacific Petroleums, Ltd., of Vancouver, B. C.

HERBERT G. MOULTON, president of the American Institute of Mining and Metallurgical Engineers, and A. B. PARSONS, secretary, both of New York, visited the Tulsa chapter last week as part of their tour of the Mid-Continent.

J. W. STRINGER, production superintendent for Trinidad Leaseholds, Ltd., Fyzabad, Trinidad, visited in New York the first part of the month and has now continued his vacation trip to his home in Texas. He will visit the International Petroleum Exposition in Tulsa May 18-25.

J. M. RUSSELL, equipment engineer for Sarawak Oilfields, Ltd., boarded the S.S. President Coolidge at Los Angeles Harbor en route to San Francisco, Honolulu, Manila, and Sarawak, Netherland East Indies, concluding a 6-month survey of American oil fields. With him on the homeward journey are Mrs. Russell and their 15-month-old daughter, completing her first encirclement of the globe.

ART T. PROUDFIT, manager in eastern Venezuela for Standard Oil Co. of Venezuela; JOE A. HOLMES, chief engineer; DICK B. KESTER, superintendent of operations at San Joaquin; LAWRENCE CADE, drilling superintendent at San Joaquin, are among the Venezuelans who plan to visit the International Petroleum Exposition in Tulsa next month.

W. L. McLAINE, formerly vice president of General Petroleum Corp., in charge of drilling operations, and now retired, consented to drill another last well and accordingly has been in charge of drilling operations of the Turf Oil Co., which has been drilling a well on property owned by the Hollywood Racing Association in the Potrero field of Los Angeles County, California.

CHASE E. SUTTON, division manager of Pure Oil Co., Houston, Tex., made a tour of inspection of the company properties in Southwest Texas the past week.

J. H. GULLOWAY, in the production department for Humble Oil & Refining Co. at Corpus Christi, Tex., has been transferred to the Kelsey field in Starr County as assistant superintendent.

DR. CARROLL E. DOBBIN, geologist with the U. S. Geological Survey, Denver, Colo., spoke at a meeting of the Executives Club at the Sherman Hotel, Chicago, last week on "The Importance of Petroleum and Other Strategic Minerals in Present World Affairs."

D. B. DOW, assistant vice president in charge of production, and M. J. KIRWAN, chief engineer, both with the Indian Territory Illuminating Oil Co. of Bartlesville, Okla., were making an extensive field inspection trip through the Permian basin of West Texas last week.

COL. ERNEST O THOMPSON, member and former chairman of the Texas Railroad Commission and member and former chairman of the Interstate Oil Compact Commission, has announced his candidacy for the Democratic nomination in the first congressional district of Texas, in succession to Rep. Marvin Jones of Amarillo, who has been appointed to the federal bench. Colonel Thompson was formerly mayor of Amarillo and was runner-up in the primary for governor in 1938. Until the congressional vacancy occurred he had intended to enter this year's campaign for governor.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

The first production from the Tucker sand in the Cushing field in Oklahoma is coming from No. 12 Vance of McMan Oil Co., a 1,300-bbl. well in Section 7-18-7.

The Carter Oil Co. is building sixty 55,000-bbl. steel tanks in the Cushing field.

20 YEARS AGO

Stockholders of the Standard Oil Co. of New Jersey have been asked to approve an increase in the capital stock of the company from $100,000,000 to $200,000,000, the new stock to have no voting power.

Gypsy Oil Co. and Phillips Petroleum Co., joint owners of a lease in Section 20-22-10, Osage County, Oklahoma, recently completed a 10,000-bbl. well on it, but the gusher fell off to 1,800 bbl. a day within a week.

The United States is consuming more oil than it is producing and Congress may be asked to do something about it. The oil business is encouraging wildcatting with the highest crude prices since Civil War days.

Sir E. Mackey Edgar, British oil man, says that by 1930 Great Britain will have the petroleum supply of the world cornered, and that the United States will have to buy 5,000,000 bbl. of British oil a year.

W. T. Waggoner, extensive landowner in Texas, recently turned down $50,000,000 offered him for his known oil lands. The oil town of Electra, Tex., was named after Mr. Waggoner's only daughter.

10 YEARS AGO

Survey is being made for the Ajax Pipe Line Co.'s 10-in. line from Cushing, Okla., to Wood River, Ill.

Production of the Texas and Louisiana Gulf Coast field has passed 200,000 bbl. a day, a new record for that area.

A. W. Ambrose is elected a vice president of the Empire Gas & Fuel Co., a Cities Service subsidiary.

G. T. N. ROBERTS, formerly in the Tulsa offices of Shell Oil Co., Inc., is now district engineer at Wichita, Kans.

W. DOW HAMM, assistant exploration manager, Shell Oil Co., Inc., Houston, Tex., was called to Okmulgee, Okla., last week by the death of his mother.

G. D. BERRY has been placed in charge of scouting and leasing in the Gulf Refining Co. office in Jackson, Miss., following 21 years' service with the company, the past 7 in Shreveport, La.

J. T. JORDAN, engineer with Shell Oil Co., Inc., has returned to the Houston, Tex., office following completion of construction and performance tests on the company's new natural-gasoline plant in Magnolia, Ark.

JACK SHEPHARD, engineering department, Humble Oil & Refining Co., has been transferred from Corpus Christi, Tex., to Heyser district; F. E. OWENS, engineering department, from Corpus Christi to Luling, and B. K. BEVILL, engineering department, from Kelsey district to Corpus Christi.

Guests at the April meeting of the "Nomads" Los Angeles chapter included CLARENCE OCHS, of Ecuadorian Oilfields, Ltd.; JESS RECTOR, Ganzo Azul, Peru; L. TRAFFORD, J. A. THORNTON and F. W. VAN BILDERBEEK of the B. P. M., The Hague: BERNARD BONGERS, United British Oilfield of Trinidad; E. M. ARCHIBALD, Trinidad Petroleum Development; CHARLES D. HAVENSTEIN of the Iraq Petroleum Co., Iraq; KARL B. JAUMAN, Attock Oil Co., India; ERNO BONEBAKKER of the B. P. M., from Netherland East Indies, and GEORGE H. L. SCHEPPERS, N. K. P. M., Sumatra.

Made Official Observer

Parker L. Melvin, named by Governor James as Pennsylvania's official observer on the Interstate Oil Compact Commission, is president of Towne-Melvin Oil Co., Bradford, Pa., and one of that field's most active operators. Pennsylvania is not a member of the commission, but producers in the country's first oil state are vitally interested in what it does.

PARKER L. MELVIN

Mr. Melvin entered the oil industry as a producer in the Bradford field in 1919, in time to participate in the intensive development of that area by water flooding. During the intervening years his interests have broadened, and in addition to heading Towne-Melvin Oil Co. he is a partner in Matson, Towne & Melvin, operating in Kansas. He is vice president and a director of the Pennsylvania Grade Crude Oil Association, a director and past president of the Bradford District Oil Producers Association, and a director and member of the executive committee of the Independent Petroleum Association of America.

Mr. Melvin's life has been spent in the atmosphere of oil. He was born in Bradford in 1895, attended the public schools of that city, and graduated from the Bradford High School in 1913. He then matriculated at Dartmouth College. At the time of his graduation with a bachelor of science degree in 1917 the first American troops were on their way to France, and he was not long in following. He spent 2 years in the army as a second lieutenant in the 303d Artillary, one of them oversea. On his discharge he engaged in the oil business.

LUDWIG SCHMIDT, assistant supervising engineer of the Bureau of Mines station at Bartlesville, Okla., is recovering from a 4-week stay at the clinic at Cleveland, Ohio.

W. C. (BILL) CUBERLEY, formerly in the scouting department of the Magnolia Petroleum Co.'s Dallas, Tex., office, has been transferred to the company's land department in the Tyler, Tex., office.

R. O. EATMAN is the new head of the personnel department of Standard Oil Co. of Louisiana's production home office in Shreveport, La. He succeeds E. R. SHAW, who has been transferred with Carter Oil Co. to Mattoon, Ill.

J. O. FOX, R. B. GEORGE and L. A. HART, all of Dallas, Tex., have recently formed the Fox-George-Hart Pipe Line Co. with headquarters in Dallas. The company will operate a recently constructed 15-mile line in Callahan County, West Central Texas.

LEONARD C. STEVENS, petroleum engineer for the Caribbean Petroleum Co., Venezuela, accompanied by Mrs. Stevens and their daughter, left Los Angeles, Calif., for an extensive automobile trip through the Gulf Coast and Mid-Continent oil fields. They plan to attend the International Petroleum Exposition in Tulsa before returning to South America.

C. W. BELLOTT, president; SHACK WARE, vice president; H. M. HEARN, treasurer, and VICTOR WHITE, secretary, head a newly organized oil-workers union, the American Guild of Oil Field and Refinery Workers. The organizing chapter, consisting of 175 employes of Lion Oil Refining Co., El Dorado, Ark., is affiliated with neither the A. F. of L. nor the C.I.O. and expects to remain independent and become national in scope.

HOWARD THOMPSON, foreman of the natural-gas plant of Union Oil Co. in the Rio Bravo field of Kern County, Calif., has just completed 20 years of uninterrupted service in the gas department of the company, halving started doing general field work.

SHIFTS: J. E. LeSUER, president, LeSuer Oil Corp., from San Jose, Calif., to Wellsville, N. Y.; RAY MAYHALL, engineer, Colo-Tex Refining Co., from Colorado, Tex., to Oklahoma City, Okla.; ARNOLD EVANS, superintendent, natural gasoline plants, Warren Petroleum Corp., from Galva, Kans., to Monument, N. M.; V. J. HEDRICKSON, geologist, Continental Oil Co., from Lance Creek, Wyo., to Denver, Colo.; NELSON PEARCE, president, Flo-Tex Oil Corp., from St. Petersburg, Fla., to DeLeon, Tex.; HARRY SNYDER, Champlain Oil Products, Ltd., from Montreal, Que., Canada, to Chicago, Ill.; SIDON HARRIS, superintendent, Stanolind Oil & Gas Co., from Amarillo, Tex., to Fort Worth, Tex.; RICHARD STORM, engineer, Sinclair Prairie Oil Co., from Breckenridge, Tex., to Wink, Tex.; THOMAS A. STEEL, engineer, Shell Oil Co., Inc., from Wichita Falls, Tex., to Tulsa; ROBERT S. COOKE, engineer, Carter Oil Co., from Tulsa to Seminole, Okla.

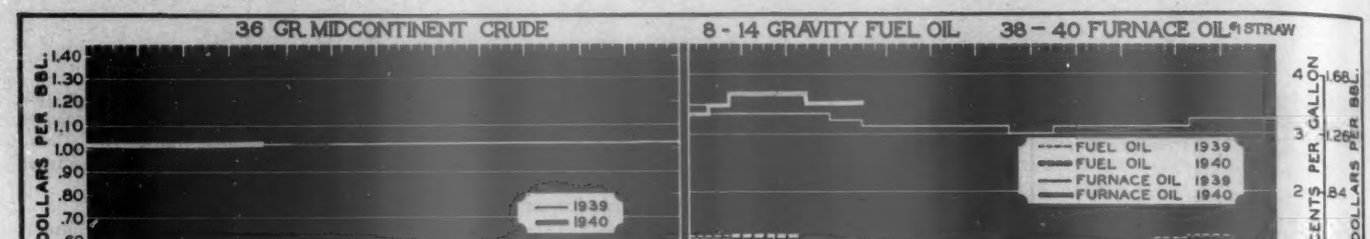
ARTHUR R. CARMODY, of Shreveport, La., vice president and a director of North Central Texas Oil Co., Inc., was elected president of the company to fill the vacancy caused by the death of William D. Bloodgood. FRANCIS B. THORNE, a director, and EDWIN L. NORTON, treasurer and a director, both of New York, were elected vice presidents.

W. A. REANIER, domestic sales manager of Associated division of Tide Water Associated Oil Co.; H. A. JACKSON, manager of white oil sales; H. R. DEAL, manager of advertising and sales promotion; R. J. IRVIN, supervisor of reseller accounts; F. L. WAGAR, manager of automotive oil and grease sales; WALTER BRUNN, merchandising manager of service stations; J. A. RANSFORD, supervisor of sales training and education; and C. F. BECKER, supervisor of motor laboratory, have completed a series of meetings by the company at various Pacific Coast points during the past 2 weeks.

BRIG. GEN. VICTOR ODLUM, of Vancouver, B. C., vice president of Home Oil Co., has been appointed to command the Second Division, Canadian Active Service Force.

B. R. SAWREY, in the industrial relations department of Lago Petroleum Corp., and Mrs. Sawrey sailed from New York April 14 returning to Maracaibo, Venezuela, after spending an extended vacation in California and in eastern cities.

PIERRE R. WHEDON, who worked in the first refinery built in the west when gasoline was a nuisance and "coal oil" the prime product of petroleum, arrived in Denver last week from Sheridan, Wyo., where he was superintendent for Continental Oil Co. until he retired recently. He was met by officials and conducted to a meeting in his honor where he was given a set of luggage. W. H. FERGUSON, vice president, spoke for the company. Mr. Whedon and his wife are on a pleasure trip marking the end of 32 years of service which began as chief clerk in the old United refinery, the first in the west, at Florence, Colo., in 1895.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

European War Developments Add to Uncertainties of Group 3 Market

By T. F. SMILEY

DEVELOPMENTS in the European war are injecting fresh elements of uncertainty into the Group 3 refinery market. Burdensome accumulations of gasoline on the Gulf Coast have been a progressive menace to operations of Oklahoma refiners since last fall, and this menace is increased by a prospect that the limited number of vessels taking material from Gulf ports will be reduced still further by the withdrawal of Norway's 250 tankers now scattered around the world.

Export business, even before the German invasion of Norway, was inadequate to move gasoline piling up on the Gulf Coast. This was not only because oversea demand failed to reach the volume expected but because disrupted ocean schedules made it difficult to get boats for even such business as appeared.

Adding to Complications

Vessels of Norwegian registry played an important part in Gulf shipments, carrying crude and its products to neutral countries. It is assumed these boats will not leave the ports where they happen to be until some policy concerning them has been adopted.

Movement of oil from the United States to Scandinavian countries is halted, temporarily at least, and there are fewer vessels to take care of the remaining export trade. This aggravates the troubles growing out of swollen stocks at the Gulf.

The gravity of the situation is indicated by the fact that stocks at the Texas Gulf have grown from 12,328,000 bbl. the first of the year to 16,052,000 in the week ended April 6. This compares with 10,079,000 bbl. a year ago. A disturbing thought in the minds of some Mid-Continent refiners is that the better gasoline prices hoped for as spring demand rises may become an invitation to ship distress material from the Gulf area to markets considered as belonging to Mid-Continent refiners.

General adoption of the A.S.T.M. method of determining antiknock quality of gasoline in the Southwest and Mid-Continent was accompanied in the past week by an advance of a quarter cent (in some instances three-eighths cent) in tank-car prices to cover the expense involved in making the higher-quality fuel. In conformity with action taken by the Western Petroleum Refiners Association at its recent convention, the 67-69-octane grade is being dropped. Three standard grades will be quoted on: 60 octane and below (third grade), 63-66 octane, and 72-74 octane (regular).

For several years the third-grade gasoline sold in Standard of Indiana territory by major refiners has had an octane rating of 67. With the raising of antiknock standards it was said third-grade material probably would be stepped up to higher ratings in some other areas, making it comparable with that in Standard of Indiana territory.

Modest Pickup Reported

Some refiners reported a modest pickup in gasoline orders this week, ascribable primarily to seasonal increase in demand, though the decreasing seriousness of competition from Illinois probably played a part.

Nothing had appeared this week calculated to lift the natural-gasoline market out of the depths. The absurdly low prices were holding, but that apparently was because further reductions would not win any business anyway.

Heating oils were benefiting from the backward spring, and refiners said they were still getting the same prices that ruled last February. Definite strength was displayed by No. 1 water white, which is used both as a furnace oil and as a tractor fuel. Many refiners have discontinued making it, with the result that actual scarcity was reported. Taking the list as a whole, there was a somewhat easier tone, suggestive of the end of the light-fuel season. Tractor fuels and kerosene were firm.

Lubricating oils showed little change from last week. Wax was steadier at unchanged quotations. U.G.I. gas oil manifested a better tone and was not easy to get at the low of the range.

Refined Oil Market Barometer

Gasoline continued soft in coastal areas, with predictions that prices would drop unless demand quickly overtakes output. Faintly better tone discernible in some interior districts. As Norway has 250 tankers, which carried oil and its products to neutral ports, that country's entanglement in war has added to the uneasiness of oil markets here. Natural gasoline weak.

MID-CONTINENT. Gasoline tone slightly improved. Naturals weak. Heating oils sag.

EAST COAST. Gasoline slow. Fuel-oil inquiries brisk. Domestic heating oils quiet.

GULF COAST. Gasoline weak. Kerosene strong, supply limited. Gas oils firm.

PENNSYLVANIA. Gasoline soft. Market generally quiet, with few price changes.

CALIFORNIA. Market moderately better. Fuel-oil demand increasing steadily.

CHICAGO. Gasoline lifeless. Heating oils active. Kerosene and tractor fuels strong.

Light Fuel Oils More Important Factor Next Season's Market

By H. STANLEY NORMAN

NEW YORK, Apr. 15.—The first definite evidence that light fuel oils will play a more important part in the economic structure of the petroleum industry next fall and winter came last week with tentative announcement of 1940-41 season top prices.

The tentative top for No. 2 fuel oil in the metropolitan tank-wagon district for next winter consumption is 7.7 cents per gallon, nearly a cent higher than the top of 6.75 cents prevailing this winter. Next winter's top prices in Westchester and Nassau counties will be 7.9 cents.

Spot deliveries of Nos. 2, 3 and 4 fuel oil are being made in all New York districts at around 7.3 cents, but a large bulk of the consumption is against contracts written last summer which carried a top limitation of 6.75 cents.

It was understood that tank-car supply contracts are being written for next winter's delivery at 5.9 cents per gallon top and at 5.8 cents for barge acceptance.

A belated snowstorm hit New York last week and sent the mercury tumbling back to mid-winter levels for several days. Snow was reported from other sections of the northeastern district, including Cleveland, several Pennsylvania cities and in up-state New York. The result was that light fuel oils enjoyed another period of brisk demand since many consumers had permitted their reserve stocks to reach a low point, anticipating cessation of burner operation.

Under the stimulus of the late-season demand, some suppliers raised their quotations for kerosene and Nos. 2, 3 and 4 fuel oil as much as 0.3 cent per gallon. Kerosene is rather generally held at 5.9 cents per gallon to the tank-car trade and 5.8 cents on barge deliveries. The light furnace oils are generally quoted at 5.4 to 5.6 cents in tank cars and 5.3 cents in barges. In New England and northern New York the light furnace oils are offered at a range of 5.5 to 5.7 cents per gallon, an advance of 0.3 cent on the low side. Contrariwise, extension of winter or severe spring temperatures accompanied by precipitation has retarded the motoring season fully 3 weeks behind normal standards. The gasoline-price structure is weak and most grades were offered tank-car consumers and distributors at a quarter to a half cent per gallon lower last week. New York suppliers offered regular gasoline at 6 cents per gallon in barges last week and tank-car deliveries were an eighth of a cent higher. Philadelphia and Baltimore suppliers quoted 6.25 cents per gallon on tank-car deliveries of 65-66, 68-70 and 72-74-octane gasoline. The gasoline market slumped from a quarter to three-quarters of a cent per gallon at Boston and Providence, ranging from 6.5 to 7.5 cents at those two points for 72-74-octane fuel.

There were no quotable changes reported from the Gulf Coast gasoline suppliers, but New York traders said there were numerous "bargains" awaiting action. Motor-gasoline prices ranged from 5 to 6.25 cents on the Gulf, depending on gravity, end point and octane. Motor fuel meeting specifications of the Gulf Coast Refiners Association ranged from 5.5 to 6.25 cents. Despite the unchanged appearance of the Gulf motor-fuel market, northern traders in touch with regular suppliers there indicated that motor gasoline could be purchased in several directions at 4⅞ cents, particularly for the less desirable grades. Stocks of motor fuel are still mounting, and it is growing more evident that development of an intense period of consumption is needed soon to avoid even more depressing conditions.

Bunker C fuel oil has eased off slightly on the Gulf Coast with more refiners quoting 80 cents per barrel. Reports could not be confirmed, however, that residual oil was being offered in one or two directions at less than 75 cents. Some Gulf suppliers continue to ask up to $1.00 per bbl. The price of $1.50 per bbl. in New York remains firm. Because of high tanker rates which persist at a range of 65 to 70 cents per barrel for the coastwise run, a downturn of major proportions would be necessary to register immediately in New York. Other products on the Gulf were unchanged, although opinion was expressed by some traders that kerosene was not as strong as during April, and that one or two suppliers are reported to have said they might be interested in loading out a cargo or two at prices an eighth of a cent below those currently quoted. Stocks were in reasonably good shape, however, on an overall basis and more serious cuts in demand will probably be needed before there is any particular pressure. Light fuels of the gas-oil classification were strong, although demand has slackened off some from peak winter conditions. Most of the light fuel oil for northern distribution is either en route or will be loaded within the next 10 days. Naturally, this does not apply to diesel fuel which is less affected by seasonal conditions.

Motor fuel was off a quarter of a cent in the western Pennsylvania district, where the regular U. S. motor grade was available at 4.25 cents per gallon. The same quality fuel was reported being delivered at Cleveland for 4.5 cents per gallon to compete with gasoline reaching that point from the producers in the Illinois district.

Despite an improvement in domestic demand for neutral lubricating oil in the western Pennsylvania refining district, the market eased off a cent last week. Refiners were accepting neutral-oil business at a range of 25 to 26 cents for 25 pour test, 200 viscosity and at 23 to 24 cents for 25 pour, 150 viscosity.

Reports were current that export interest in various grades of lubricating oil has been revived to some extent. Refiners could not trace the interest to the expansion of military operations, but it seems a logical conclusion. The rush of neutral and belligerent powers at the start of the war to purchase lubricating oils, indicated that stocks of this necessity for motorized military operations were not as abundant in Europe as the fuel products. Bright stocks managed to hold their market position, and it was this grade of product that was apparently receiving most of the revived export interest. Considerable bright stock remains in refiner storage which was sold at the outset of the war. Through the existing circumstances regarding tanker movement in convoys and through the tedious process of clearing contraband-control ports, it is not much wonder that shipping instructions are slow. Dark cylinder lubricating-oil stocks were offered by most refiners at prices off a half cent.

Scale-wax prices were down again at a range of 4.65 to 4.90 cents in New York. The fully refined grades are showing greater resistance to market pressure and the demand is reported holding fairly high.

A. P. I. Weekly Refinery Statistics

Week Ended April 13, 1940

	Capacity reporting (per cent)	Daily crude runs (bbl.)	Total gasoline stocks (bbl.)	Gas oil and distillate stocks (bbl.)	Residual fuel-oil stocks (bbl.)
East Coast	100.0	595,000	22,476,000	5,804,000	8,017,000
Appalachian	91.0	115,000	4,021,000	410,000	589,000
Ind., Ill., and Ky.	88.5	532,000	18,424,000	2,347,000	3,289,000
Okla., Kans., and Mo.	76.9	272,000	8,462,000	978,000	1,880,000
Inland Texas	59.6	139,000	1,917,000	266,000	1,366,000
Texas Gulf	85.3	843,000	16,108,000	2,762,000	5,235,000
Louisiana Gulf	97.6	133,000	2,865,000	700,000	855,000
N. Louisiana and Ark.	51.5	39,000	666,000	187,000	430,000
Rocky Mountains	55.5	47,000	1,751,000	142,000	564,000
California	87.3	492,000	18,087,000	9,481,000	78,210,000
Total reported	84.9	3,207,000	94,777,000	23,077,000	100,435,000
Est. unreported	.....	363,000	7,060,000	1,160,000	2,160,000
*Est. total	.....	3,570,000	101,837,000	24,237,000	102,595,000
*Est. total previous wk.	.....	3,455,000	101,690,000	23,551,000	105,099,000
*April 14, 1939	.....	3,330,000	87,285,000	26,128,000	109,952,000

*Bureau of Mines.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATE)

Week ended April 6, 1940	251,897,000 barrels
Week ended March 30, 1940	250,561,000 barrels
Week ended April 8, 1939	275,774,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

Gulf Coast Markets

HOUSTON, Tex., Apr. 16.—In spite of increased activity in the European war and the approach of summer

(Continued on Page 119)

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of April 16, 1940

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline: Tank wag.	Dir.	Incl. tax	Kero. tank wag.
Chicago, Ill.	15.1	13.1	4.0	10.0
Decatur	15.1	12.1	4.0	9.5
Joliet	15.1	13.6	4.0	10.0
Peoria	15.1	12.7	4.0	10.0
Quincy	14.9	13.4	4.0	9.8
Davenport, Ia.	15.1	13.6	4.0	‡10.0
Des Moines	14.9	12.4	4.0	‡9.8
Mason City	15.3	13.8	4.0	‡10.2
Duluth, Minn.	16.9	15.4	5.0	10.8
Mankato	16.5	15.0	5.0	10.4
Minneapolis	16.5	14.5	5.0	10.4
LaCrosse, Wis.	16.5	15.0	5.0	10.4
Green Bay	16.9	15.4	5.0	10.3
Milwaukee	16.3	14.8	5.0	10.2
Detroit, Mich.	13.6	12.1	4.0	7.6
Grand Rapids	13.2	11.7	4.0	9.0
Saginaw	14.8	12.7	4.0	9.3
Evansville, Ind.	16.6	15.1	5.0	†10.5
Indianapolis	16.8	14.3	5.0	†10.2
South Bend	16.8	15.3	5.0	†10.2
Fargo, N. D.	17.7	16.2	5.0	11.6
Huron, S. D.	17.0	15.5	5.0	10.9
Kans. City, Mo.*	14.4	12.9	4.0	8.0
St. Louis*	14.7	13.2	4.0	8.0
St. Joseph	14.4	12.0	4.0	7.9
Wichita, Kans.	13.3	11.1	4.0	7.0

*State tax 2 cents, 1-cent city tax, and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gal. or more, 1.5 cents off; minimum delivery 25 gal.

Stanolex Fuel Oil in Chicago

Effective April 2, 1940, f.o.b. Chicago tank-wagon prices: Standard heater oil, 1-99 gal., 9 cents; 100-149 gal., 8 cents; 150 gal. and over, 7.5 cents. Stanolex fuel oil No. 1, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex furnace oil, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex Grade A, 1-399 gal., 5.5 cents; 400 gal. and over, 4.5 cents. Stanolex Grade B, 1-799 gal., 5.25 cents; 800 gal. and over, 4.25 cents. Stanolex Grade C, 1-999 gal., 4.5 cents; 1,000 gal. and over, 3.5 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline: Cons'r tank wag.	Divided dlr.	Incl. tax	Kero. tank wag.
Ohio points	15.5	14.5	5.0	*12.0

*Includes state tax of 1 cent.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline: Cons'r tank car	Dir. tank wag.	Incl. tax	Kero. tank wag.
Atl'tic City, N. J.	11.6	12.7	4.0	8.4
Newark	11.6	12.7	4.0	8.4
Annapolis, Md.	13.35	14.35	5.0	9.5
Baltimore	12.75	13.75	5.0	7.5
Cumberland	14.15	16.15	5.0	10.0
Wash'gton, D. C.	11.00	12.0	3.0	9.5
Danville, Va.	14.95	17.45	6.0	11.5
Norfolk	13.75	16.25	6.0	11.0
Petersburg	14.05	16.55	6.0	11.7
Richmond	14.05	16.55	6.0	11.0
Roanoke	15.25	17.75	6.0	11.5
Charles'n, W. Va.	14.55	17.05	6.0	12.6
Parkersburg	13.85	15.35	6.0	11.2
Wheeling	14.85	16.75	6.0	11.8
Charlotte, N. C.	16.90	18.40	7.0	11.8
Hickory	17.45	18.95	7.0	12.3
Mt. Airy	17.30	18.80	7.0	12.2
Raleigh	16.65	18.15	7.0	11.5
Salisbury	16.95	18.45	7.0	11.9
Charleston, S. C.	14.75	17.25	7.0	9.25
Columbia	15.60	18.10	7.0	11.5
Spartanburg	16.30	18.80	7.0	12.2

Price basis to Essolene undivided dealers: Dealer tank-wagon price less 0.5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryand, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gal., consumer tank-wagon price at time and place of delivery; 100,000 gal. per year, consumer tank-car price plus 0.5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less 0.5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gal. or more, consumer tank-wagon price. Single deliveries of less than 50 gal., 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less 0.5 cent per gallon. The above policy also applies in South Carolina, effective January 23, 1939.

Discounts for kerosene, 1 cent off tank-wagon price for 25 gal. or more under contract (contract not necessary in Baltimore), except no discount in New Jersey.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline: Cons'r tank wag.	Net dlr.	Incl. tax	Kero. tank wag.
Atlanta, Ga.	18.0	18.0	7.0	11.0
Augusta	17.5	17.5	7.0	10.0
Macon	16.5	16.5	7.0	10.0
Savannah	16.5	16.5	7.0	9.0
Birmingham, Ala.	18.5	18.5	8.0	9.0
Mobile	18.5	18.5	9.0	8.0
Montgomery	19.5	19.5	9.0	11.0
Jackson, Miss.	16.0	16.0	7.0	10.0
Vicksburg	16.0	16.0	7.0	9.5
Jacksonville, Fla.	17.0	17.0	8.0	8.0
Miami	17.0	17.0	8.0	8.0
Pensacola	18.5	18.5	9.0	8.5
*Tampa	21.0	18.0	8.0	8.0
Lexington, Ky.	15.0	15.0	6.0	10.0
Covington	14.5	14.5	6.0	9.5
Louisville	15.5	15.5	6.0	9.0
Paducah	15.5	15.5	6.0	9.0

Price basis to tank-wagon consumers, effective January 4, 1937, 3 cents per gallon below tank-wagon price.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent. All are included in the table.

*Temporary discounts to tank-wagon consumers in Tampa 3 cents per gallon below consumer tank-wagon price on Crown gasoline.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline: Cons'r tank car	Dir. tank wag.	Incl. tax	Kero. tank wag.
Albany	12.1	14.1	5.0	8.3
*Met. N. Y.: Manhat., Bronx, Queens, Brklyn., Staten Island	12.2	13.3	5.0	8.5
Buffalo	12.6	14.5	5.0	7.9
Rochester	12.8	14.8	5.0	8.5
Syracuse	12.7	14.5	5.0	8.8
Portland, Me.	12.1	14.1	5.0	8.5
Manchester, N.H.	12.7	14.5	5.0	8.9
Burlington, Vt.	12.6	13.4	5.0	8.7
Boston, Mass.	11.0	12.5	4.0	8.5
Worcester	11.6	13.1	4.0	8.0
Hartford, Conn.	11.4	13.3	4.0	8.4
New Haven	11.3	12.3	4.0	7.5
Providence, R. I.	11.0	13.0	4.0	8.5

*Does not include 2 per cent city sales tax, which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Effective February 15, 1939, the company changed its commercial consumer policy in New York and in New England points for tank-wagon delivery to the following: Annual purchases 10,000 gal. and under, tank-car price plus 2 cents per gallon; annual purchases 10,000 gal. up to 50,000 gal., tank-car price plus 1.5 cents per gallon; annual purchases 50,000 to 200,000 gal., tank-car price plus 1 cent per gallon; annual purchases 200,000 gal. and over, tank-car price plus ½ cent per gallon. Private consumers pay undivided dealer price, plus 2 cents per gallon. Private consumers receiving full compartment deliveries of at least 200 gal. receive a discount of ½ cent per gallon.

Pennsylvania and Delaware

ATLANTIC REFINING CO.

	Gasoline: Cons'r tank car	Dir. tank wag.	Incl. tax	Kero. tank wag.
Philadelphia, Pa.	12.0	13.5	5.0	10.5
Pittsburgh	13.0	14.5	5.0	10.5
Allentown	13.0	14.5	5.0	10.5
Erie	13.0	14.5	5.0	10.0
Scranton*	12.5	15.0	5.0	10.5
Altoona	13.0	15.0	5.0	10.5
Dover, Del.	...	13.5	5.0	10.5
Wilmington	...	13.5	5.0	10.0

Price basis to undivided dealers, dealer tank-wagon price less 0.5 cent per gallon.

Discount on kerosene, 2 cents per gallon off tank-wagon price on tank-wagon deliveries of 25 gal. or more at one time.

*Voluntary discount of 1 cent allowed to dealers only.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline: Tank truck	Serv. sta.	Incl. tax	Kero. tank wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	20.0	21.0	6.0	*17.5
Reno, Nev.	20.5	21.5	5.0	13.5
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	†13.75
Spokane	21.5	22.5	6.0	†16.75
Tacoma	20.0	21.0	6.0	†13.75

*Includes 5-cent state tax. †Includes 0.25-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gal. and over, advance quantity discount extended at time of delivery, 3 cents. Service-station schedule applies on single deliveries less than 40 gal. On kerosene in tank-car, transport-truck, and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank wagon.

March 18, 1939, split dealer discount was canceled.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline: Tank wag.	Dir.	Incl. tax	Kero. tank wag.
Denver, Colo.	13.0	...	5.0	10 5
Grand Junction	17.5	...	5.0	12.5
Pueblo	13.0	...	5.0	9.0
Casper, Wyo.	16.5	...	5.0	11.5
Cheyenne	14.0	...	5.0	11.0
Billings, Mont.	18.0	...	6.0	12.0
Butte	18.0	...	6.0	13.0
Great Falls	18.0	...	6.0	12.0
Helena	18.5	...	6.0	12.5
Salt Lake, Utah	15.5	15.5	5.0	14.0
Boise, Idaho	21.1	21.1	6.0	16.0
Twin Falls	21.1	21.1	6.0	16.5
Albu'que, N. M.	13.5	...	6.5	10.0
Roswell	16.0	16.0	6.5	8.0
Santa Fe	17.5	17.5	6.5	10.0

*Includes city tax of 0.5 cent. †Includes state tax of 1 mill.

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline: Tank wag.	Dir.	Incl. tax	Kero. tank wag.
Texarkana, Ark.	13.0	...	5.0	7.0
Fort Smith	14.5	...	5.0	7.5
Little Rock	16.75	...	7.5	8.0
Muskogee, Okla.	13.0	12.0	5.0	7.0
Oklahoma City	11.0	10.0	5.0	6.5
Tulsa	11.0	...	5.0	6.0

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline: Cons'r tank car	Dir. tank wag.	Incl. tax	Kero. tank wag.
New Orleans, La.	14.75	17.25	8.0	†11.0
Baton Rouge	14.75	17.25	8.0	‡10.5
Alexandria	14.75	17.25	8.0	‡10.5
Lafayette	15.00	17.50	8.0	‡10.0
Lake Charles	14.75	17.25	8.0	‡12.5
Shreveport	13.50	16.00	8.0	9.0
Knoxville, Tenn.	18.00	19.50	8.0	12.5
Memphis	16.00	17.50	8.0	11.0
Chattanooga	17.50	19.00	8.0	12.0
Nashville	17.00	18.50	8.0	11.5
Bristol	18.25	17.75	8.0	12.0

Essolene at dealer price less 0.5 cent per gallon to undivided dealers.

†Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gal. or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gal. at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less 0.5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gal., consumer tank car plus 2 cents per gallon 50 to 199 gal., consumer tank car plus 1 cent per gallon; 200 gal. and over, consumer tank car plus 0.5 cent per gallon.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline: Tank wag.	Dir.	Incl. tax	Kero. tank wag.
Omaha	16.5	13.5	6.0	9.5
McCook	16.5	13.4	6.0	9.0
Norfolk	16.5	14.4	6.0	9.5
North Platte	17.8	14.9	6.0	10.0
Scottsbluff	18.5	15.5	6.0	10.0

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Texas

	Gasoline: Tank wag.	Dir.	Incl. tax	Kero. tank wag.
Dallas, Tex.	12.0	16.0	5.0	7.0
Fort Worth	12.0	16.0	5.0	8.0
Houston	13.5	17.5	5.0	7.0
San Antonio	13.0	17.5	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	16.2
V.M.&P. naphtha	16.5
Cleaners' naphtha	15.5
Stanisol	15.5

*Prices include 3-cent Illinois tax but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gal. lots if covered by contract.

Canada*

3-Star Imperial Gasoline

IMPERIAL OIL, LTD.

	Tank wag.	Incl. tax	Kero. tank wag.
Halifax, N. S.	25.0	10.0	19.0
St. John, N. B.	25.0	10.0	19.0
Montreal, Que.	24.0	8.0	16.5
Toronto, Ont.	23.5	8.0	16.0
Hamilton, Ont.	23.5	8.0	16.0
Winnipeg, Man.	26.5	7.0	20.5
Brandon, Man.	28.0	7.0	22.9
Regina, Sask.	25.5	7.0	20.5
Saskatoon, Sask.	28.0	7.0	23.0
Edmonton, Alta.	25.9	7.0	20.4
Calgary, Alta.	23.0	7.0	18.4
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Tank-Wagon Changes

Standard Oil Co. of Indiana April 6 reduced dealer gasoline 0.6 cent in Saginaw.

Standard Oil Co. of Ohio April 3 reduced tank-wagon kerosene 1 cent throughout Ohio.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of April 16, 1940

The quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils. Octane ratings in Middle West, Mid-Continent, and Southwest (except Arkansas) are based on A.S.T.M. method of testing.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 octane and below	.03¾	.03⅞
63-66 octane	.04⅛	.04¼
72-74 octane (regular)	.04⅝	.04¾
60-62 400 grades:		
62 octane and below	.03¾	.03⅞
63-66 octane	.04⅛	.04¼
72-74 octane (regular)	.04⅝	.04¾

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.03¾	.03⅞
63-66 octane	.04⅛	.04¼
72-74 octane (regular)	.04⅝	.04¾
60-62 400	.03¾	.03⅞

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
62 octane and below	.04¼	.04½
63-66 octane	.04⅝	.04¾
72-74 octane (regular)	.05⅛	.05⅜

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
62 octane and below		.04
70-72 octane (regular)		.05

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.04	.04⅛
63-66 octane	.04⅜	.04½
72-74 octane (regular)	.04⅝	.04⅞
60-62 400 grades:		
62 octane and below	.04	.04⅛
63-66 octane	.04⅜	.04½
72-74 octane (regular)	.04⅝	.04⅞

PENNSYLVANIA (inland refineries)—

58-62 U. S. Motor		.05
72-74 octane (regular)	.06	.06¼

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.05¾	.07
58-60 400, 65 oct. and higher	.07	.08

EAST COAST (domestic)—

U. S. Motor, 65 and above:		
*New York (Bayonne)	.060	.0680
Philadelphia	.060	.0625
Boston	.0625	.0675
Baltimore	.060	.0650
Charleston, S. C.	.065	.0675

*All grades of gasoline ⅛ to ¼ cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery ¼ cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
65-67 octane	.04¾	.04¾
68-70 octane	.04¾	.05
70-72 octane (leaded)	.05	.05¼

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.01⅜
Grade 18-55	.01¾	.01⅞

NORTH TEXAS—

Grade 26-70		.01¼
Grade 18-55		.01½

CALIFORNIA—

75-85 375-390	.05¾	.06

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.01⅝

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110-flash, 540-550 e.p.	.03¾	.03⅞
41-43 gr., 300-320 l.b.p., 110-125 flash, 500-520 e.p.	.03¾	.03⅞
46-48 gr., 210-230 l.b.p., 480-max. e.p.		.04⅛

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43		.03⅞
42-44		.04

NORTH TEXAS—

41-43	.03¾	.03⅞

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.04	.04¼

ARKANSAS (Ark. and N. La. del.)—

41-43		.03⅞

PENNSYLVANIA (inland refineries)—

45	.04⅞	.05
46	.05	.05⅛
47	.05⅛	.05¼

CHICAGO (Based on Group 3)—

41-43	.03⅞	.04⅛
42-44	.04	.04¼

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04½	.05¾

NEW YORK (Bayonne, N. J.)—

41-43	.059	.065

***GULF COAST (domestic)—**

41-43	.04½	.04⅝

*Barge price ⅛ cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03¾	.03⅞
No. 1 prime white, 38-42	.03⅞	.03¾
No. 1 straw, 38-40	.03½	.03⅝
No. 2 straw, 32-36	.03⅜	.03½
No. 2 dark, 32-36	.03¼	.03⅜
No. 3 zero to 10, 28-32		.03¼
No. 3, 15 and above, 28-32	.02¾	.02⅞

NORTH TEXAS—

No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03¾	.03¾

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03	.03⅛

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36		.03⅜

CHICAGO (Based on Group 3)—

Range oil	.03¾	.03⅞
No. 1 prime white, 38-40	.03⅜	.03⅞
No. 1 straw, 38-40	.03⅛	.03⅜
No. 2 straw, 32-36	.03⅜	.03½
No. 2 dark, 32-36	.03¼	.03⅜
No. 3, zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02¾	.02⅞

NEW YORK (Bayonne, N. J.)—

*No. 1	.059	.065
*No. 2	.054	.056
*No. 4	.054	.056

*Barge deliveries ⅛ to ¼ cent under above tank-car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil, under 35	.02⅝	.02¾
No. 5, low pour point, 18-22	.72½	.77½
No. 6, 15 and above, 8-14	.45	.50

NORTH TEXAS—

U.G.I. gas oil, under 35	.02⅝	.02¾
No. 5, low pour point, 18-22	.72½	.77½
No. 6, 15 and above, 8-14	.45	.50

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.65	.70

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅝	.02⅞
No. 5, low pour point, 18-22	.75	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pour point, 10-16	.60	.70
No. 6, 15 and above, 10-16	.45	.55

PENNSYLVANIA (inland refineries)—

36-40	.03⅞	.04

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.15	1.25
24 plus diesel, per bbl.	1.15	1.25
24 plus diesel (bunkers)	1.20	1.35
12-16 (bunkers at tidewater)	.65	.75
10-16 (cargo lots)	.65	.75
12-17 (tank cars)	.80	.75
10-17 (high sulfur)	.50	.65
San Joaquin Valley:		
10-18 (tank cars)	.50	.70
24 plus diesel, per bbl.	1.15	1.25
San Francisco:		
24 plus diesel, per bbl.	1.35	1.40
24 plus diesel (bunkers)	1.40	1.50
10-16 (bunkers)	.80	.85

GULF COAST—

No. 2 fuel		.04⅛
43-47 diesel		.04
48-52 diesel		.04⅛
53-57 diesel		.04⅛
58-and-above diesel		.04¾
Bunker C (bulk cargoes)	.75	.90
Bunker C (bunkers)	.90	1.00

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil	.054	.056
28-30 diesel (lighterage 6¼c per bbl.)	2.20	2.35
28-30 diesel (tank cars)	.05	.056
Bunker C (to ocean-going ships in N. Y. Harbor)		1.50
Industrial fuel (tank cars)	.035	.04

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

200-210 D, 10-25		.26
150-160 D, 0-10		.22
150-160 D, 10-25		.21
100-110 D, 0-10		.21
100-110 D, 10-25		.20
Steam refined:		
600 dark green (untreated)		.07½

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour point		.25½
15 pour point		.24½
25 pour point		.23
Steam refined:		
600	.13	.14
650	.15	.16
600 flash	.17	.18
630 flash	.18	.19

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

0-10 pour point:		
150-3		.11½
180-3		.12½
180-4		.12
200-3		.13
200-4		.12½
250-3		.14½
250-4		.14
280-3		.15½
280-4		.15
300-3½		.16
400-3½		.17
100-2½ paraffin oil		.07
10-25 pour point:		
200-3		.12½
200-4		.12
250-3		.14
250-4		.13½
280-3		.15
280-4		.14½

GULF COAST—

Pale oils:		
200-3	.07¼	.07½
300-3	.07¾	.08
500-3½	.08½	.09
750-3½	.09	.09½
1,200-3½	.09¾	.10
2,000-4		.10¼
Red oils:		
200-5-6	.07	.07¼
300-5-6	.07½	.07¾
500-5-6	.08¼	.08¾
750	.08¾	.09¼
1,200-5-6	.09¾	.09¾

CALIFORNIA (moving to dom. market)—

Pale oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¾	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11¼
400-5-6	.09¼	.11¼
450-5-6	.09¼	.11¼
500-5-6	.09¼	.11¼
600-5-6½	.09¼	.11¼
700-6½ plus	.09¼	.11¼
750-6½ plus	.09¼	.11¼
900-6½ plus	.09¾	.11⅜

PENNSYLVANIA—

150 vis. at 70° F., 3 color, 400-405 flash:		
Zero pour point		.26½
10 pour point		.25½
15 pour point		.24½
25 pour point	.23	.24
200 vis. at 70° F., 3 color:		
Zero pour point		.28½
10 pour point		.27½
15 pour point		.26½
25 pour point	.25	.26

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (A.m.p.) w.c. scale	.05	.05¼

PENNSYLVANIA (inland refineries)—

122-124 (A.m.p.) w.c. scale	.04⅞	.05
124-126 (A.m.p.) w.c. scale	.04⅞	.05

NEW YORK—

Wax in bags fully refined:		
125-127 (A.m.p.) wax	.0620	.0630
128-130 (A.m.p.) wax	.0620	.0640
130-132 (A.m.p.) wax	.0630	.0660
133-135 (A.m.p.) wax	.0650	.0680
135-137 (A.m.p.) wax	.0665	.0685
Crude scale:		
124-126 (A.m.p.) w.s.	.0465	.0480
124-126 (A.m.p.) y.s.	.0465	.0480
Petrolatum in barrels, carload lots:		
Dark green	.03125	.03375
Amber	.03375	.03625
Extra amber	.03625	.03750
Lily white	.05750	.06000
Snow white	.06625	.07000
Cream	.04750	.05000

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.04⅞	.05¼
60-62 400	.05	.06¼
61-63 390	.05¼	.06¼
64-66 375	.05⅝	.06¼

LOS ANGELES—

U. S. Motor grades:		
60-65 octane	.05½	.05⅝
65-69 octane	.05⅝	.06¼
Above 69 octane	.06¼	.06⅛

KEROSENE

GULF COAST—

41-43 water white	.04½	.04⅝

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s. in bbl.)—

Cylinder stocks:		
600 S.R. unfiltered	.21	.21½
630 S.R. unfiltered	.23	.23½
600 flash, S.R.	.24	.24½
630 flash, S.R.		.28
Bright stock:		
Light, 25 pour point	.31	.31½

NEUTRAL OIL

200-3 color		.33
150-3 color	.31	.31½

PARAFFIN WAX

NEW YORK (prices per pound)—

123-125 A.m.p.		.07⅛
125-127 A.m.p.	.06¾	.07¼
128-130 A.m.p.	.07	.07½
133-135 A.m.p.		.07¾
135-137 A.m.p.		.07⅞
Crude scale:		
124-126 w.s.	.0465	.0490
124-126 y.s.	.0465	.0490

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1940 High	1940 Low	Week ended Apr. 13 High	Week ended Apr. 13 Low	Week ended Apr. 13 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1939	Com. sh. earn. 1938	Com. sh. earn. 1937	1939 High	1939 Low	1938 High	1938 Low
58½	53	57¼	55⅞	55⅞	Amerada Corp.	788,675	N.P.	50cQ	1-31-40	$2.00	$2.07	$3.04	74½	50	78	55
23⅜	20½	23⅛	22	22	Atlantic Refining	2,663,999	$25	25cQ	3-15-40	1.00	1.40	3.51	24⅜	19⅛	27⅜	17⅜
16⅝	13¾	16½	15	15	Barber Asphalt Co.	390,223	$10	25c	2-20-40	.25	—.85	1.91	21	10¼	23¾	12¼
13⅜	10¾	12⅜	11⅜	11⅝	Barnsdall Oil Co.	2,250,344	$5	15c	3-9-40	.90	1.26	.85	19½	11⅛	21⅜	10¼
8⅛	7	8⅛	7½	7⅝	Consolidated Oil Corp.	13,751,846	N.P.	20cQ	5-15-40	.80	.55	1.48	9⅝	6½	10⅜	7
25	22⅛	24	23	23	Continental Oil of Delaware	4,682,581	$5	25cQ	3-25-40	1.00	1.10	2.98	31½	19⅞	35⅜	21¼
6⅞	5½	6⅛	5⅝	5⅝	Houston Oil	1,098,618	$25	....	10-17-30	....	.83	.94	9⅜	4½	9⅜	5
13½	11⅜	13½	13	13	Lion Oil Refining	435,815	N.P.	25cQ	4-1-40	1.00	2.09	2.17	18⅛	10	25⅛	15⅝
16⅝	13⅜	16⅛	15¼	15½	Mid-Continent Petroleum	1,857,912	$10	40c	6-1-40	.60	.56	2.86	18	11⅛	22⅝	12¼
11	9½	11	10	10	Mission Corporation	1,379,245	$10	40c	12-15-39	.65	1.04	1.31	14⅞	8¾	17⅝	10⅝
9¾	8⅛	9⅛	8⅝	8⅝	National Supply	1,155,517	$10	....	12-22-37	....	—.79	4.90	15⅛	5⅝	23	12½
8	6½	7⅞	7⅛	7¼	Ohio Oil Co.	6,563,377	N.P.	20c	12-15-38	....	.25	1.30	10½	6	14⅞	8⅞
8¼	7	..	..	..	Pacific Western Oil	1,000,000	N.P.	40c	12-19-39	.40	1.22	1.39	11⅞	7	15⅞	10¼
8½	6¾	8½	8⅜	8½	Pan American Pet. & Trans.	4,702,945	$5	....	12-31-37	....	.08	1.18	8¾	5	9¼	6¼
41¾	36½	39⅞	38	38⅜	Phillips Petroleum	4,449,052	N.P.	50cQ	3-1-40	2.00	2.03	5.42	46½	31¼	44⅜	27¼
22¾	20½	21⅞	21⅝	21⅝	Plymouth Oil Co.	1,006,200	$5	35cQ	3-30-40	$1.40	2.59	2.85	24	17⅛	25⅝	15
10½	8⅛	10½	10	10¼	Pure Oil Co.	3,982,031	N.P.	25c	12-20-39	.25	.38	2.15	11⅝	6⅛	13⅛	8¼
8⅜	6¾	7⅝	7	7¼	Richfield Oil Corp.	4,010,000	N.P.	50c	12-18-39	.50	.51	.35	10¼	6⅝	9⅞	5
20	17⅝	18¼	17⅝	17⅞	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	3-15-40	1.00	1.52	1.97	24⅜	15½	27⅛	15½
13⅛	10⅜	12⅜	12	12⅛	Shell Union Oil	13,070,625	N.P.	25c	12-20-39	.50	.72	1.44	17¼	9⅞	18⅝	10
22½	18½	22⅝	21½	22¼	Skelly Oil	995,340	$15	25c	1-30-40	.75	2.27	6.07	29½	15½	34⅜	18½
12½	11⅛	12¼	11¼	11⅜	Socony-Vacuum	31,206,071	$15	25cSA	3-15-40	.50	1.29	1.82	15⅜	10¼	16⅜	10⅜
26⅛	22⅝	24¼	23¼	23¼	Standard Oil of California	13,004,153	N.P.	25cQ	3-15-40	1.10	2.22	3.17	33⅝	24¼	34⅞	25⅛
29	25	28⅛	27⅜	27⅝	Standard Oil (Indiana)	15,272,020	$25	25c	3-15-40	1.25	1.82	3.66	30	22⅜	35½	24⅜
46½	42⅜	44⅛	42⅛	42⅛	Standard Oil of New Jersey	26,618,065	$25	75c‡	12-15-39	‡1.25	2.86	5.64	53½	38	58⅜	39⅜
63⅝	56¼	63	62¾	62¾	Sun Oil	2,316,484	N.P.	25c*	3-15-40	1.00	1.07	3.86	66	45⅝	65⅛	45
2½	21	2¼	2⅛	2⅛	Superior Oil Corp.	1,388,979	$1	10c	12-28-38	....	.24	.32	3⅝	1⅝	4¼	1⅜
47⅝	42⅜	47½	46	47	Texas Corp.	10,876,882	$25	50cQ	4-1-40	2.00	2.13	5.02	50⅜	32½	49⅝	32⅜
4¼	3½	4⅛	4	4	Texas Gulf Producing Co.	888,146	N.P.	10c	6-15-40	.20	.86	.68	5⅜	3¼	5⅞	2⅝
8⅝	7½	8¼	7¾	7⅞	Texas Pacific Coal & Oil	888,236	$10	10c	3-1-40	.40	1.16	1.11	11⅜	7	12½	7
11¼	10	11¼	10½	10½	Tide Water Associated	6,375,253	$10	15c	3-1-40	.80	1.28	2.08	14¼	9½	15⅜	10⅛
17½	16	16⅞	16¼	16⅜	Union Oil Co. of California	4,666,270	$25	25c	5-10-40	1.05	1.47	2.58	19⅜	15⅛	22½	17⅛
27¼	22⅜	27¼	26⅞	26⅞	Union Tank Car Co.	1,177,381	N.P.	40c†	3-1-40	1.30	1.16	1.70	24¼	20⅛	23½	20
3⅝	2⅞	3⅜	3⅛	3⅛	Wilcox Oil & Gas	487,568	$5	10c	2-15-40	....	.52	.24	4¼	2⅜	3½	1⅝

*Also 5 per cent in stock. †Includes extras. ‡Also 2 per cent in stock. §Also 4 per cent in stock. ‖Also 2½ per cent in stock. ¶Also 1½ per cent in stock. —Deficit.

New York Curb Exchange

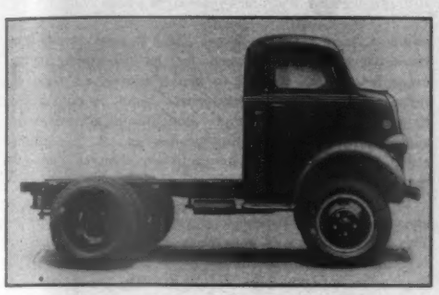
1940 High	1940 Low	Week ended Apr. 13 High	Week ended Apr. 13 Low	Week ended Apr. 13 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1939	Com. sh. earn. 1938	Com. sh. earn. 1937	1939 High	1939 Low	1938 High	1938 Low
8⅞	6⅛	8¼	7½	7⅝	American Republics Corp.	1,308,049	$10	10c	7-11-38	....	—$0.22	$0.27	11⅝	5½	11⅜	5
3¼	2¼	2⅞	2⅝	2⅞	Bridgeport Machine Co.	270,000	N.P.	$1.25	12-30-37	....	—.14	1.90	7¼	2½	10¼	4⅞
43	28	39½	38	38	Buckeye Pipe Line Co.	200,000	$50	$1	3-15-40	$2.50	2.36	4.02	34⅜	26½	39	22½
117	110	116½	116	116½	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	3-29-40	6.00	5.32	6.73	130	108⅝	128	97
5½	4	5½	5⅛	5⅛	Cities Service (new)	3,704,067	$10	....	6-1-32	....	.23	1.02	9¼	4¼	11	5⅛
2⅛	1⅛	2⅛	1⅞	2	Cosden Petroleum	462,551	$1	....	.....	....	....	.19	2¼	½	2⅝	⅞
22⅜	19¾	21⅜	20⅛	20⅜	Creole Petroleum	6,975,383	$5	50cSA†	12-15-39	1.00	1.64	1.61	28	16¾	27½	17½
4⅜	4	4¼	4	4	Darby Petroleum	351,390	$5	25cSA	1-15-39	.25	....	1.36	7⅛	3⅝	10¼	5½
2	1⅝	1⅞	1½	1⅝	Derby Oil & Refining	263,162	N.P.	....	.....	....	—.91	1.34	2⅝	1½	3½	1½
31	23½	..	..	..	Eureka Pipe Line	50,000	$50	75c	5-1-40	2.00	—.37	—.12	23	15⅛	31	16
39⅞	34	37½	35¾	35¾	Gulf Oil Corp.	9,076,202	$25	25cQ	4-1-40	1.00	1.43	3.51	45⅛	29¼	46⅞	33
68	58	62¾	62	62	Humble Oil & Refining	8,987,840	N.P.	62½c	4-1-40	2.00	3.98	5.22	71	52½	72⅝	56
12⅜	10⅝	11⅜	10⅜	10⅜	Imperial Oil of Canada	26,965,078	N.P.	37½c†	12-1-39	1.00	.96	.98	17	11⅜	19½	14⅛
7¾	5¾	7¼	6⅞	7	Indiana Pipe Line	300,000	$10	10c	5-15-40	.50	.47	1.03	7⅛	5½	9⅝	6
19¾	16½	16⅞	16⅜	16⅜	International Petroleum	14,324,088	N.P.	75c	12-1-39	1.75	1.98	....	27½	17	31¼	21
2⅜	2¼	2½	2⅜	2½	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	....	.14	.17	3⅜	2⅛	5	2⅛
10⅝	9⅝	9⅞	9⅝	9⅝	Lone Star Gas	5,553,747	N.P.	20c	4-22-40	.70	.88	1.14	10½	7⅛	10⅝	6⅝
6¼	5	6¼	5⅞	5⅞	Louisiana Land & Exp.	2,977,449	$1	10c	3-15-40	.35	.45	.58	7⅜	4	9⅝	6⅛
17	11½	15¼	15¼	15¼	Margay Oil Corp.	149,943	N.P.	25cQ	4-10-40	1.00	2.28	3.26	17	14½	24	16
8⅛	7¼	8⅛	8	8	Midwest Oil Co.	998,474	$10	45c	12-15-39	.90	.93	1.14	8⅜	6⅝	9⅜	6⅝
6	5¼	6	5⅝	6	Mountain Producers	1,593,584	$10	30cSA	12-15-39	.60	.62	.76	6	4⅞	5⅝	4½
13⅛	12	12⅛	12¼	12¼	National Fuel Gas	3,810,183	N.P.	25cQ	4-15-40	1.00	.84	.96	14	11¼	14⅝	11⅛
12⅛	8⅜	18	11	12⅛	National Transit	509,000	$12.50	50c	12-15-39	.85	.88	1.19	9½	7⅛	9¼	6½
1¼	1	1⅛	1⅛	1⅛	New Mexico and Arizona	1,000,000	$1	1c	12-1-37	....	.02	.02	1⅜	1	2⅝	1½
7	5¼	7	6⅞	7	New York Transit	100,000	$5	25c	4-15-40	.40	.16	.49	6	4	4½	3⅛
9½	6¾	9½	8¼	9½	Northern Pipe Line	120,000	$10	15c	12-1-39	.30	.24	.78	7	4½	6	4
5½	4½	4⅞	4½	4⅝	Pantepec Oil	2,857,000	$1	....	.....	....	....	....	7⅝	4	7⅝	3½
3¼	2¼	2⅞	2⅝	2⅝	Root Petroleum Co.	336,045	$1	25c	2-1-37	....	.17	—.17	5	1¼	4½	1⅝
2¼	1⅞	2⅛	2⅛	2⅛	Ryan Consolidated	298,931	N.P.	....	.....	....	.29	.46	3	1⅞	4	2⅛
11¾	4⅞	11¾	8¾	10½	Southern Pipe Line	100,000	$10	15c	3-1-40	.30	—.27	.85	4⅜	3½	5⅝	3¼
44	37½	40½	39¾	39¾	South Penn Oil	1,000,000	$25	37½c	3-29-40	3.00	1.44	4.64	40½	26¾	39	28¾
35	22	28	27	27	Southwest Penna. Pipe Lines	35,000	$50	$5	4-1-40	2.00	—.41	.95	23	18	22¼	16½
20⅞	20	20⅝	20⅜	20⅜	Standard Oil of Kentucky	2,604,790	$10	25c	3-15-40	1.30	1.45	1.60	20⅛	17⅛	18⅝	15
37½	28¾	37½	35¾	36	Standard Oil of Ohio	753,740	$25	25c	3-15-40	1.50	1.81	3.67	32⅜	17	22⅞	16¼
2	1⅜	2	1⅞	1⅞	Sunray Oil	2,007,076	$1	5c	5-1-40	.10	.23	.42	2⅜	1⅜	3¼	2
2⅝	2½	2⅝	2⅝	2⅝	Texon Oil & Land	936,624	$2	10c	3-29-40	.10	.56	.51	4	2⅝	5¼	3⅛
3⅜	2¼	3	2½	2⅝	Transwestern Oil Co.	750,000	$10	....	.....	....	—.12	.48	6	2½	7⅝	4¼
2⅛	1¼	1⅝	1⅝	1⅝	United Gas Corp.	7,818,959	$1	....	.....	....	—.51	.25	3⅜	1½	5¼	2⅝

†Includes extras. —Deficit.

EQUIPMENT PROGRESS...

New Marmon-Herrington Ford V-8 Designed to Meet Truck Need

Demands from truck lines and contractors for a short-coupled, medium-weight all-wheel-drive truck to be used for semitrailer work in highway trucking and



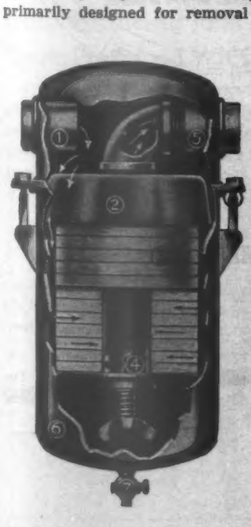
for general construction and excavation services, have been answered by the Marmon-Herrington Co., Indianapolis, Ind., with a standard Ford 101-in. wheelbase cab-over-engine model, converted to all-wheel-drive in the Marmon-Herrington factory.

The extradorinary maneuverability of this vehicle is apparent. The short wheelbase provides an unusually short-turning radius. All-wheel-drive traction and power give ability to climb steep hills and insure performance in soft or slippery footing. Normal front-wheel placement gives a greater approach angle for getting in and out of ditches, excavations, etc., without "rooting." Cab-over-engine design permits better load balancing, more uniform traction and less tire wear.

These same features, which make for remarkable performance off the road, insure faster, more economical, and safer operation on paved highways. This model, like all other Marmon-Herrington all-wheel-drives, is equipped with constant-velocity joint steering ends, which take the "fight" out of the steering wheel, and provide easy steering control under all conditions.

Protectomotor Air Filter Removes Oil From Compressed-Air Lines

The Model AAPHS Protectomotor air filter, announced by Staynew Filter Corp., Rochester, N. Y., is primarily designed for removal of the slightest traces of oil from compressed air lines. In addition, it prevents the passage of moisture as well as dust, dirt, pipe scale, or other foreign matter commonly found in pipe lines for air supply.



First built to solve a problem in instrument protection, the Model AAPHS was adapted later for use on the combustion-control system of the electric power unit of a public utility. Several installations were made also for instrument protection, and many new uses developed rapidly. As a result, the model is now a standard item in the comprehensive Staynew line of filters for air, gas, and liquids.

The main feature is a series of disks possessing a large absorption area in addition to unusual filtering efficiency. These disks are made of Feltex, an exclusive feltlike material.

The Feltex disks are carried on a tube composed of an inner liner of perforated metal covered with a fine bronze wire mesh screen. This tube helps to drain oil removed from the air to the bottom of the filter shell.

Construction details include: 1, intake pipe; 2, deflector cup, which precipitates most oil and other foreign matter to the sides of the shell by centrifugal force; 3 and 4, discs and the tube that carries them; 5, outlet; 7, drain cock.

Frictional Parts Are Eliminated in Newest G. E. Plugging Switch

In a new plugging switch for controlling motor stopping, recently introduced by General Electric Co., the use of an Alnico magnet as its fundamental part eliminates frictional parts or clutches and contributes to low-maintenance costs and long-operating life.

In stopping a motor it is often desirable to reverse the power connection and so bring the motor to rest quickly by its tendency to run in the reverse direction. This is plugging. However, if the motor is to stop, it is necessary that the plugging power be removed at the correct moment to keep the motor from reaccelerating in the reverse direction. This is accomplished by a plugging switch.

In the operation of this new switch, a driven Alnico rotor produces a rotating magnetic field which induces eddy currents in the walls of the aluminum cup. The magnetic reaction produced by the eddy currents turns the cup through its limited rotation, and the contacts are operated by the Textolite rod which connects the cup and the movable contact strip.

J-M Controlled Spring Isolators Overcome Machine Vibration

An easily installed vibration isolator, designed to control machine vibration economically and reduce the resulting noise, is announced by Johns-Manville, 22 East Fortieth Street, New York. This device, the J-M controlled spring isolator, was developed for use on the bases of motors, generators, pumps, ventilating fans, and similar equipment where vibration and excessive motion create noise and tend to wear out machine parts and damage connections as well as crack the supporting walls and floors.

The working parts consist of a coil spring and a rubber load pad, which support the equipment and isolate vibration, and an adjustable rubber snubber inside the base, which controls excessive motion. Through the combination of these parts, the manufacturer states, the isolator provides both the high compliance necessary for good isolation and the control needed to limit motion in the equipment.

The isolator was built to take care of horizontal and torsional as well as vertical vibration, and tests by the J-M research laboratories, where the unit was developed, indicate it to be particularly efficient for the low-frequency vibrations resulting from slow speeds and from many operations involving reciprocal action. The load pad is designed to overcome any high-frequency vibrations.

New Magnetic Method of Orienting Deflecting Tools Is Introduced

The new magnetic method of orienting deflecting tools at the bottom of bore holes, developed by Sperry-Sun Well Surveying Co., 1608 Walnut Street, Philadelphia, Pa., is not only extremely accurate and requires less time, but provides a positive photopraghic check of the actual position of the deflecting tool.

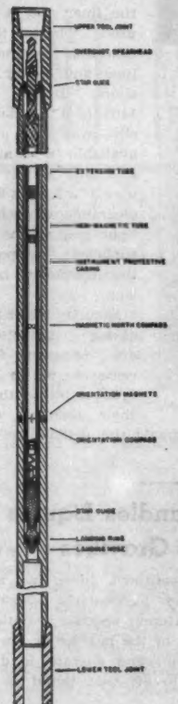


Fig. 1

The orientation is accomplished by the use of a nonmagnetic sub (Fig. 1), containing two small magnets and provision for seating a directional magnetic single-shot instrument. The sub is arranged in the drill-string assembly immediately above the deflecting tool. The relative azimuthal angle between the magnets of the nonmagnetic sub and the direction of the tool face is measured before lowering the drill string

Fig. 2

Sample record, showing magnetic north, as well as direction of deflecting tool. Section of needle marked by black circle indicates direction of tool

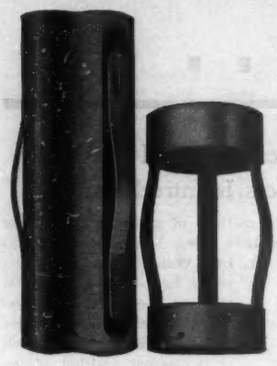
in the same manner as an ordinary bit into the hole. After the tool has reached bottom and before setting it, a record is taken with a directional single-shot magnetic instrument in which a second compass unit has been temporarily interchanged for the inclination unit. Since the second compass is located directly opposite the magnets in the sub, this record indicates not only the magnetic north, but also the relative position of the deflecting tool to the magnetic north. A picture of the sample record is shown in Fig. 2. The magnetic north, shown by the letter *N*, and the position of the deflecting tool, W-73-S, is indicated by the section of the white needle with the round black circle. The drill pipe is then rotated to bring the deflecting tool into the desired position, and another single-shot record is made to check on the final position of the deflecting tool.

In holes which have an inclination of more than 3°, and in which the inclination and the direction of the hole at the point where the deflection is to take place are known from a previous survey, a short magnetic sub, provided with four magnets, and a directional magnetic single shot with one compass and an inclination unit, are used. The record taken inside of the magnetic sub shows the inclination and relative position of the deflecting tool to the direction of the inclination. Since the direction of the inclination is known from the previous survey, the direction of the deflecting tool can be easily determined.

The method is available to producers and directional-drilling contractors under license.

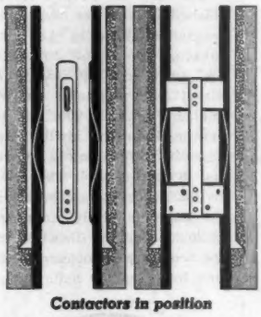
Security Liner-to-Casing Contactors Are Removable With Drilling Bit

Security casing contactors, introduced by Security Engineering Co., Whittier, Calif., are used in connection with installations of Securaloy drillable oil-well liners to shunt electric currents flowing between liner and casing. They can be used for either cemented or uncemented liners. In the case of cemented liners the contactors also centralize the liner to permit even distribution of cement.



A-1465 B-1465

Design A-1465 casing contactor mounts directly on the liner and it is used where the clearance between liner and casing is slight. Design B-1465 is a standard slip-over type, available to fit any size liner and it is used when the clearance between liner and casing is sufficient to pass the contactor collars.



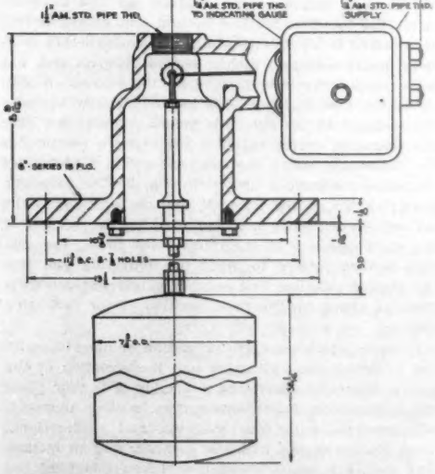
Contactors in position

Security liner-to-casing contactors are designed for removal with a drilling bit so that their assembly on a Securaloy liner does not impair the drillability of the installation.

Fisher Controller Handles Liquids Of Different Specific Gravities

Fisher Governor Co., Marshalltown, Iowa, has announced a liquid-level controller particularly designed for handling two liquids of different specific gravities. This controller holds the level of the heavier or lower liquid at a predetermined point and operates a diaphragm control valve to drain off that liquid as it accumulates in the tank.

The difficulty of level control where the difference between specific gravities of two liquids is slight is a



frequent problem in the oil-refinery industry. Fisher Type 246-P Interface Level-Trol is especially adapted to meet the need for this type of control. It can be furnished with various sizes of floats to meet various conditions of specific gravity.

The pilot valve incorporates throttling-range adjustment and level-position adjustment, both readily accessible. This controller has a cast-steel housing flanged for mounting on horizontal vessels. The stainless-steel float is furnished correctly sized to handle specific gravities as specified. The float rod also is stainless steel. Other construction features include Air-flo cooling-fin member, pressure-tight bearing, and bronze body for pilot valve.

TRADE LITERATURE

CARBIDE & CARBON CHEMICALS CORP., 30 East Forty-second Street, New York. — Illustrated 32-page booklet on the activated carbon solvent recovery system.

NORTON CO., Worcester, Mass.—Current number of Grits and Grinds, featuring article on grinding of billets.

WORTHINGTON PUMP & MACHINERY CORP., Harrison, N. J.—Bulletin S-550-B7, on Worthington vertical four-cycle gas engines, and Bulletin W-341-B7, on Worthington vertically split, single-stage volute centrifugal pumps.

THE ESTERLINE-ANGUS CO., INC., Indianapolis, Ind.—Current number of the Graphic, featuring article on what can be done with a Graphic Wattmeter.

WARNER LEWIS CO., 230 East Third Street, Tulsa. —Circular illustrating and describing the L-ZR utility pumping unit.

DODGE MANUFACTURING CORP., Mishawaka, Ind. —Bulletin A-325, announcing the new Dodge-Timken double interlock roller bearing.

D. W. HAERING & CO., INC., 2308 South Winchester Avenue, Chicago.—Current number of H-O-H Lighthouse, which appears in more convenient form and is to be published quarterly hereafter.

THE BUNTING BRASS & BRONZE CO., 715 Spencer Street, Toledo, Ohio.—1940 Bunting catalog cast-bronze sleeve-type standardized bearings.

FAIRBANKS, MORSE & CO., Chicago.—Bulletin 5972, two-stage centrifugal pumps.

REPUBLIC STEEL CORP., Cleveland, Ohio.—Two-color 40-page catalog, double-strength, high-tensile, low-alloy steel.

THE INTERNATIONAL NICKEL CO., 67 Wall Street, New York.—Winter edition of Inco., devoted to uses of nickel and nickel alloys.

CHICAGO PNEUMATIC TOOL CO., 6 East Forty-fourth Street, New York.—Two single-sheet publications, one on the 365-R reversible wrench and the other on the 375-R reversible wrench, both "power vane" type.

MARMON-HERRINGTON CO., INC., Indianapolis, Ind.—Current issue Marmon-Herrington All-Wheel-Drive Pictorial News, featuring a mythical trip around the world, showing how the company's vehicles cope with mud, slush, snow, desert sands, hills, ditches, etc.

THE LOGAN ENGINEERING CO., 4912 Lawrence Avenue, Chicago.—Bulletin 340, explaining operation of Aridifier in removing moisture, oil, and dirt from compressed air and gas.

INTERNATIONAL HARVESTER CO., 180 North Michigan Avenue, Chicago.—Two bulletins, A-59-DD, on new U-2 power unit (22 hp. at 1,800 r.p.m.), and A-60-DD, on new UD-18 power unit (100 hp. at 1,400 r.p.m.).

JOHNSON BRONZE CO., New Castle, Pa.—Catalog 400, 76 pages, Johnson general-purpose bearings.

LEA FABRICS, INC., Newark, N. J.—12-page booklet telling how this company has done an engineering job in construction of valve cups, which are said greatly to reduce pulling expenses caused by valve-cup failures.

Crown Block Designed for Heaviest Derrick Loads in Deep Drilling

To handle the heaviest derrick loads in deep drilling, engineers of Regan Forge & Engineering Co., P.O. Box 150, San Pedro, Calif., developed a 600-ton-

capacity crown block, Type EH. Improvements now have been added to increase structural strength. The cross beams are welded to heavy plates, forming the most rigid assembly. This crown block is constructed to meet the need for simple, continuous, over-and-over reeving, using large-diameter sheaves. It is equipped with six or seven 48-in.-diameter sheaves, grooved for 1, 1⅛, or 1¼-in.-diameter wire line, as desired.

There are no castings with the exception of the sheave, and the spacers between the sheave beams. The remaining parts are all of rolled-steel plates and I-beam sections. The Regan principle of double bearings with integral pins rotating with the sheaves is embodied in this improved crown block. Catline or swabbing-line sheave attachments can be furnished.

Wheel Chart Gives Meehanite Data

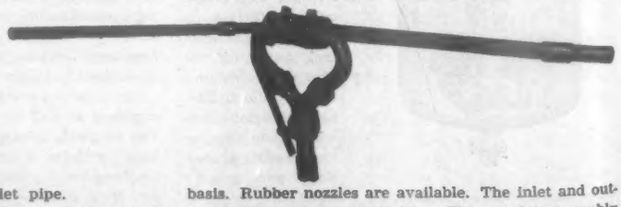
A handy wheel chart (illustrated), which contains complete engineering data about all the various types of Meehanite castings available to industry, has been

MEEHANITE METAL
PHYSICAL SPECIFICATION CHART OF MEEHANITE CASTINGS FOR ENGINEERING PURPOSES
MEEHANITE RESEARCH INSTITUTE OF AMERICA, INCORPORATED
PITTSBURGH, PA.

prepared by Meehanite Research Institute of America, Inc., 311 Ross Street, Pittsburgh, Pa. The wheel quickly reveals the physical properties of general engineering castings as well as heat, corrosion, and wear-resisting types. A chart will be mailed free upon request.

MUD GUN DESIGNED ESPECIALLY FOR 24-HOUR SERVICE

A new type of mud gun has been developed by Patterson-Ballagh Corp., 1900 East Sixty-fifth Street, Los Angeles, Calif. This type will supplement the standard safety mud gun previously marketed by the company. The new Super Universal mud gun is designed with a double flow, but with a single outlet. The double flow eliminates the hydraulic reaction which causes mud guns to spin. Two flow lines form a Y fitting from the double-flow element, connecting with the outlet pipe.



A locking device holds the gun in any desired fixed vertical position, and the operating handle is adjustable to different angles best to meet the convenience of the operator. This gun was designed particularly for services where mud must be jetted on a 24-hour basis. Rubber nozzles are available. The inlet and outlet discharge of the gun is 2 in. The complete assembly weighs 84 lb.

Allows Squeezing of Formation at Same Time the Liner Is Set

The Brown Type P packer, perfected by Brown Oil Tools, Inc., Houston, Tex., makes possible a method of squeezing the formation at the same time liner is set, eliminating the added expense and time involved in an extra round trip. This packer is run on the last joint of the liner in conjunction with a Brown Type T or V set shoe. It is collapsed in the conventional manner when the liner is run to bottom.

The Brown Type P packer, once set, cannot move up the casing or lose its seal, because it has ratchet slips on a buttress thread on the inside and hold-down slips on the outside.

Squeezing is accomplished by pumping through the set shoe and around the liner, squeeze pressure applied being equalized inside and outside of liner, with no part of the liner subjected to bursting or collapse stresses. Pressure is held in the liner by the use of inverted swab rubbers on the tail pipe of the setting tool. The assembly also permits the formation to be broken down with water satisfactorily, according to the manufacturer, before the squeezing with cement is done. When squeeze pressure is released and cementing string is picked up, excess cement may be circulated out of the hole, leaving the squeeze pressure on the formation until the cement sets.

The Brown set shoe is built of special alloy cast iron which readily drills out. It is claimed that this method permits the squeezing of the entire lengths of liner in the hole without the necessity of bridge plugging, squeezing, and drilling out operations previously required to squeeze off water sand prior to setting liner.

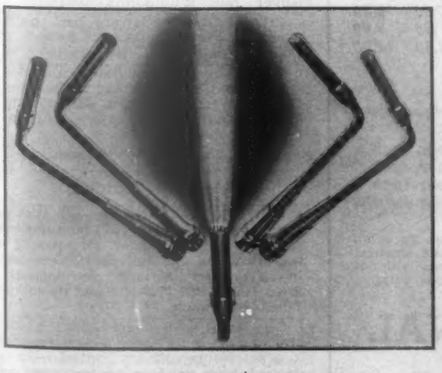
Connelly Offers New Valve

Several newly developed back-pressure valves are announced by Connelly Iron Sponge & Governor Co., 3154 South California Avenue, Chicago. The Type HR features a design that permits cleaning by simply removing a cap and withdrawing the working parts without disturbing the pipe line. Thus, a servicing problem has been simplified.

Another counterbalanced back-pressure valve is Type HV, which features extreme sensitivity and perfect balance for vertical mounting. It is claimed to be so finely balanced that in operation the movable disk, sensitive to a breath, opens and closes positively with the slightest back flow. These and other back-pressure valves are shown in a new bulletin.

Hard-Surfacing Jobs Free of Soft Spots Produced With RegO Tips

This group of tips, designated as RegO GXH series is obtainable from the Bastian-Blessing Co., 242 East Ontario Street, Chicago, in four different sizes, GXH72,



68, 60, and 56. They make it possible, according to the manufacturer for any experienced operator to produce hard-surfacing jobs free of soft spots and pinholes. Welders who have used these tips on field tests are said to have approved them because of the smooth, soft flame operation, the speed, and the excellent results achieved. RegO multiple tips, the manufacturer says, offer these advantages:

1. Multiple-hole tip construction permits high heat output, yet produces a soft, brush-like flame that eliminates turbulence in the weld puddle, thereby preventing detrimental pinholes in the applied hard-surfacing material after it has cooled.

2. The wide flame produced makes it easier for the operator to keep the weld zone and the rod in a protective carbonizing flame envelope, thus eliminating harmful oxidation.

3. Individual mixer in each tip assures correct gas mixing and economical operation.

4. Low equipment cost because GXH tips are designed for use with standard RegO GX or SX welding-torch handles.

Thinsulite Is Latest Achievement in Insulation and Refractory Fields

What is said to be the latest engineering achievement in the insulation and refractory field is Thinsulite construction, introduced by M. H. Detrick Co., 140 South Dearborn Street, Chicago. By combining thin refractories, insulation, and the suspended tile principle, a complete suspended enclosure is now available with all the advantages and economies of the heavy Detrick Detred construction.

Thinsulite is suitable for boiler walls, water-wall backing, oil-still heaters and stress-relieving furnaces—in fact, all areas not exposed to actual abrasion. The advantages of Thinsulite include low cost for labor, light weight, low heat loss, permanent heattight and airtight construction, and low maintenance cost.

Construction details, applications and heat-transfer curves are shown in the new Detrick Thinsulite catalog which will be sent on request.

AMONG EQUIPMENT MEN...

Frosty Martin Invitational Mile Cup Goes to University Track Man

W. R. Martin, president of Martin-Decker Corp., has for the past 3 years sponsored the "Frosty Martin Invitational Mile" held in connection with the annual Long

Beach relays, which this year attracted more than 1,100 track and field athletes to Long Beach, Calif., from all parts of the country. In the 1940 meet Louis Zamperini, fast miler of the University of Southern California, scored his third consecutive victory in this event and consequently became the permanent owner of the perpetual trophy shown in the picture, in addition to the smaller individual-meet trophy.

General Sales Manager for Coffing

Coffing Hoist Co., Danville, Ill., has appointed Harry N. Hayes general sales manager. Mr. Hayes has been with Coffing for years as district sales manager in various territories, with the result that he is well known in the field. Previous to becoming affiliated with Coffing he had many years of engineering and selling experience.

BUSINESS NOTES

W. HARLAN TAYLOR, connected with Petty Geophysical Co. since 1930, has been transferred to Houston, Tex., where he will be supervisor for the company's Gulf Coast territory. Before going to Houston, Mr. Taylor served as supervisor for the company's southeast states division in Jackson, Miss. Mr. Taylor is a graduate of Dartmouth and did graduate work at Michigan and Stanford.

Shand & Jurs Co., Berkeley, Calif., has moved its Chicago office from 565 West Washington Boulevard to 310 South Michigan Avenue. This office is under the direction of R. W. Blake.

Thulin Advanced by Duff-Norton

Duff-Norton Manufacturing Co., Pittsburgh, Pa., manufacturer of lifting jacks, has made Earl E. Thulin vice president and general manager of sales. Mr. Thulin for the present will have headquarters in the Peoples Gas Building, Chicago. Later in the year he will be located in the general offices of the company in Pittsburgh.

C. N. Thulin remains in Chicago as vice president and will act in a sales executive capacity as a special representative in all territories. W. I. Floyd has been appointed assistant general manager of sales. He will continue as assistant to the president, with headquarters in the general offices.

Pillsbury Honored for Pioneering

Edwin S. Pillsbury, president of Century Electric Co., St. Louis, Mo., was honored recently by the committee on modern pioneer awards at the celebration of the 150th anniversary of the American patent system. Mr. Pillsbury developed the first commercially practical high-torque single-phase motor.

Made Division Tubular Manager

National Supply Co. has appointed James M. Thompson division tubular manager for its Texas division. Mr. Thompson is a native of Texas, having been born and reared in Fort Worth. Following his graduation from Virginia Military Institute in 1919, Mr. Thompson worked in building industry in Fort Worth until 1934 when he joined Norvell-Wilder Supply Co. In this connection he worked out of Fort Worth to East, West, and North Texas until August 1939, when he was transferred to the company's Tulsa offices.

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PATENT ATTORNEY

Patents obtained — infringement practice in all Courts—oil field experience. 1807-11 Tower Petroleum Bldg., Dallas; 2014 Second Nat'l. Bank Bldg., Houston. 506 Aztec Building, San Antonio, Tex., 457 Munsey Building, Washington, D. C. Address any of these offices.

Leases and Drilling Blocks

LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up.—Owners—Address Attorney, Box 1122, Little Rock, Ark.

BROKERS and SALESMEN
only
A complete SERVICE EXPERTS in every department of the Oil Business at your SERVICE a REAL SET-UP. The best opportunity ever offered you. Leases in large or small lots at
WHOLESALE PRICES
Write today and get started right.
OIL BROKERS EXCHANGE
Santa Fe, New Mexico.

NEW MEXICO WEEKLY OIL REPORT. Send for sample copy.
BOX 968, HOBBS, N. M.

HAVE blocked 4,000 acres in 18-12, Barton County, Kansas. Hess Oil Co., Dwight Building, Kansas City, Missouri.

EAST TEXAS Trinity sand wildcats. Major Company blocks will start shortly. Two strikes recently made. Three others likely prospects next Sixty days. If you have some money and sense enough to give these Majors credit for having some sense, there's a likely chance you might make some quick money.

E. CROFT
Proctor, Texas.

ILLINOIS BASIN. First Sand at 500 ft. 50 to 60 bbls. flush, 38 gravity. Second and third pay 1200 and 2100 ft. I furnish lease, drill, complete one well to first sand, assign all for $3000.

H. B. BUDDENBORG
Carlinville, Illinois.

CRANE-WARD County 20 ac. cheap in fee, under Magnolia lease. J. G. Smith, 215 Littlefield Bldg., Austin, Texas.

2,600 ACRES oil lease one year free for an oil test. Give reference. Box 362, Merkel, Taylor Co., Texas.

CRUDE OIL, large amounts Mississippi, Texas. Refinery, dealer buyers wanted. J. L. Arlitt, 17 East 42nd, New York, N. Y.

690 ACRES raw land near Gore, Okla., $3.50 acre. With all mineral rights. 315 Alexander Building, Tulsa, Oklahoma.

FOR SALE: 10 acres in Atoka Co., Oklahoma. NE¼, SW¼, SE¼, Sec. 9, Twp. 4 South, Range 13 East. James C. Barry, 3505 Legation St. N. W., Washington, D. C.

Leases and Drilling Blocks

FOR SALE Oil and gas leases and small production located in Kentucky shallow field, and leases located in Clay County, Tenn. Have for sale two tracts of proven Fluorspar and Zinc deposits; reports furnished on request. W. P. Harley, Bowling Green, Kentucky.

NEW MEXICO
STATE OIL AND GAS LEASES

40 acres and multiples thereof. $6.00 to $60.00 per forty. Buy direct. Save those dollars. No middle man to pay; no salesman to bother you! Twenty years in the business without a complaint. Write for information.

HARRY S. WRIGHT
New Mexico State Lessee
Wright Bldg., Farmington, New Mexico.

WELL LOGS. Drillers' logs of approximately 4,000 wells drilled in New Mexico are available from Well Log Division, New Mexico Bureau of Mines & Mineral Resources, Socorro, New Mexico. Write for price list C.

ATTENTION Drillers and Contractors—A fine proposition for a well in Idaho, for immediate action. Shallow wells show oil and gas. Communicate with Lafe Boone, Route 2, Boise, Idaho.

WEST TEXAS OIL LEASES
AND ROYALTIES

If you wish to buy or sell producing or Non-producing oil leases or royalties located in West Texas or Eastern New Mexico; Address:

AMERICAN NATIONAL BROKERAGE CO.
Post Office Box 516
Levelland, Texas.

OIL lease; SW. ¼ of Sec. 15-16s-15e, Plaquemines Parish, La. Owner, J. Manz, St. Johns Hospital, Iola, Kansas.

WE OWN FOUR 30-YEAR OIL LEASES IN CUBA

A—864 hectares on Gulf riparian rights 16 miles from Havana in noted Bacuranao section.
B—250 hectares adjoins the only producing oil field on Island 10 miles from Havana. Bacuranao section.
C—Two 50 hectare tracts near Matanzas. Open for proposition. W. D. Strong, Box 401, Miami, Florida.

ORDERED sold by the Court, 20,000 acres, Morris and Titus Counties, half Mineral rights reserved. Let me present your offer of $3.50 acre, requires cash. REUBEN USHER, Cleburne, Texas.

NORTHEAST quarter, Section 15, Township 6, Range 1w, Cleveland County, is open for lease. W. A. PARTRIDGE, Sand Springs, Oklahoma.

Leases and Drilling Blocks

LEASE: 400 acres, 12-5-7, 3½ miles Pure Marshall County discovery well. Owners, Allen Hill, Durant, Okla.

FOR complete and accurate coverage of the new Artesia Area, read The ARTESIA (New Mexico) ENTERPRISE. $2 a year.

FOR SALE: In need of money will sacrifice 80-acre lease of my farm located in West Harrison County joining block which has just started drilling. Per acre $12.50 cash and $12.50 in oil. E. O. WILLIAMS, Marshall, Texas.

FOREST CITY BASIN Leases near new discovery well and location I am about to drill. E. C. HELM, Paola, Kansas.

Legal Blanks

BURKHART'S legal blanks and general forms serving Mid-Cont. oil field since 1908—Okla. Kans. N. Mex. Tex. Ala. Ark Fla. Ga. Ill. Ind. Ky. La. Mich. Miss. Mo Neb. N. Dak. Tenn. Wyo. Free catalog. samples on request. Burkhart Ptg. & Sta. Co. 115 S. Cinn. Tulsa, Oklahoma.

Survey Service

REMEMBER EAST TEXAS

When all other methods fail, employ my divining or dowsing method. If oil exists this method finds it. Faults, broken treacherous areas accurately defined. Our Watson #2, first producer Wilmington, Calif. field, located by this method. More reliable than mechanical geophysics. Ask any unbiased oil authority. Many years' experience. A wise man investigates. George Miller, 1548 Post, Torrance, California.

Geophysical Service

PROFITS in the Oil Business come from accurate location of new oil pools. Let us show you how. Gravitational Selector Company, 14957 Lakewood Heights Boulevard, Lakewood, Ohio.

Oil Industry Printing

OIL FIELD LEGAL BLANKS

Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Financing

CAPITAL SEEKERS

Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD, Fox Theater Building, Detroit, Michigan.

JOHN MORRIS, Box 5411, Philadelphia, studied records 5000 financial houses. Found only 191 buy new issues. $4.00.

Royalties

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

Brokers—Salesmen

Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo.

PURCHASERS AND DISTRIBUTORS
PRODUCING ROYALTIES
Registered with S. E. C.
INVESTMENT ROYALTIES, LTD.
Ramsey Tower, Oklahoma City, Okla.

WILL purchase limited amount producing royalty. priced right, and to bear strictest investigation. Box 240, Pauls Valley, Okla.

For Sale—Maps

R. B. ROBINSON MAPS
Jackson, Miss. 3-Hart Bldg., Across Street from Heidelberg Hotel. Ownership maps All Over Mississippi.

1940 OIL AND GAS FIELD MAP
Texas, Eastern New M. Price $1.00.
Wildcat Map $3.00 Published monthly.
ZINGERY OIL MAP CO., Fort Worth, Tex.

Mailing Lists

ROYALTY Lists. Oil Investor Lists. Stockholders Lists. By States. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa.

ROYALTY, lease and oil investors in any state. Catalogue. Flory Co., Box 105. Fort Worth, Texas.

Real Estate

FOR LEASE — Five to 10 years, shop now being used by Hydril Co.; two or more acres, all steel building with 15-ton crane, trackage, office building, all utilities, etc. Available May 15.
M. R. DUCEY, Owner
309 Webster, Houston, Texas.

Incorporations

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CHARTERS — Delaware best, quickest, cheapest, more liberal. Free forms. Colonial Charter Co., Wilmington, Del.

If we do not maintain a classification exactly suited to the type of advertisement you wish to run we shall be glad to create a fitting one.
Classified Department.

Help Wanted

PETROLEUM Engineer with successful sales experience in oil well pumping equipment. Preferably under 35 years of age. Qualifications and full particulars desired in first letter. Strictly confidential. Address Box K-491, The Oil and Gas Journal, Tulsa, Oklahoma.

CHEMIST with degree from a university and at least three years' experience in a petroleum refinery control laboratory desired by a modern central state refinery. Address Box K-542, The Oil and Gas Journal, Tulsa, Oklahoma.

CLASSIFIED ADVERTISING RATES

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgment is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times
3 Lines	$1.05	$1.80	$2.55	$3.30
4 Lines	1.40	2.40	3.40	4.40
5 Lines	1.75	3.00	4.25	5.50
6 Lines	2.10	3.60	5.10	6.60
7 Lines	2.45	4.20	5.95	7.70
8 Lines	2.80	4.80	6.80	8.80
9 Lines	3.15	5.40	7.65	9.90
10 Lines	3.50	6.00	8.50	11.00

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Classified Display is set with a border and may be used in one or two column sizes.

1 Inch	1 time	$5.00
1 Inch	13 times	4.50 per inch
1 Inch	26 times	4.00 per inch
1 Inch	52 times	3.50 per inch

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

Situations Wanted

REFINERY Process Engineer, Chemical Engineer, 20 years diversified industrial experience including process research, development, design, consultation, refinery operation. Capable executive; excellent record in handling labor and lowering production costs. Outstanding ability to analyze refinery requirements and processes. Desires position as refinery executive in operation or engineering. Address Box K-534, The Oil and Gas Journal, Tulsa, Okla.

GRADUATE CHEMIST, 4 yrs.' experience laboratory research, engineering design, construction and operation of catalytic refg. proc. Familiar with ref. oper. Excellent references. Address Box K-564, The Oil and Gas Journal, Tulsa, Okla.

DESIRE connection with sales organization of manufacturer of equipment for the oil and gas industry. Well qualified by technical training and twelve years as refinery superintendent and engineer to competently handle sales engineering work. Address Box K-567, The Oil and Gas Journal, Tulsa, Oklahoma.

CERTIFIED PUBLIC ACCOUNTANT
Now engaged in public accounting practice, desires executive accounting position with progressive firm. University graduate, thoroughly familiar with all phases of drilling and oil company accounting, taxes and system installation. 32 years old, personable, conscientious and accustomed to responsibilities. Address Box K-582, The Oil and Gas Journal, Tulsa, Oklahoma.

HAVE wide acquaintance with Oil Fraternity, Mid-Continent area, good set-up to properly represent Manufacturer of oil field lines, excellent references. Address Box K-581, The Oil and Gas Journal, Tulsa, Oklahoma.

For Sale—Equipment

FOR SALE: Now erected Oklahoma City field, one type T-19-3-B Pritchard and one Model 21-ZA-9 Fluor Cooling towers. I.T.I.O., Bartlesville, Oklahoma.

FOR SALE: In Oklahoma City field, 10 twin type 80 horizontal cooper single acting 4 cycle engine compressors, Indian Territory Illuminating Oil Company, Bartlesville, Oklahoma.

500,000 TONS Texas Granite, for sale cheap, suitable Buildings, Monuments, Roads, Levees, Jetties, Seawalls. Indestructible. Brokers protected. J. L. Aritt, 17 East 42nd, New York, N. Y.

FOR SALE: Star #28 beam steam machine lines and tools complete. Box 592, Emporia, Kansas.

NOTICE — CABLE TOOL CONTRACTORS, Save money; used wire lines. All sizes up to 5,000 ft. long. See us before you buy. General Tool & Supply Co., P.O. Box 4387, Oklahoma City, Oklahoma.

FOR SALE: One set new, two sets slightly used 6½" Spang weldless drilling jars 3⅛—4⅛—7 in. I.T.I.O. Co., Bartlesville, Oklahoma.

For Sale—Equipment

For Sale—Equipment

For Sale—Equipment

LIQUIDATING—BARNSDALL REFINERY—OKMULGEE, OKLAHOMA

2500 bbl. thruput cracking—6000 bbl. topping and cracking. Original cost $600,000.00—Units complete in every respect. Turbine driven hot oil pumps—Priced for immediate sale. Will dismantle and load for reerection, or will take turnkey job for dismantling and reerection your site.

WIRE *PHONE* *WRITE*

SONKEN-GALAMBA SUPPLY COMPANY

W. C. Berry or H. J. Galamba
Riverview at Second, Kansas City, Kansas

Robt. W. Duden
2100 S. Union, Tulsa, Oklahoma

FOR SALE cheap at Oklahoma City, 18" O.D. 28# and 20" 35# Naylor Plain end Spiralweld pipe, suitable for surface pipe. I.T.I.O. Company, Bartlesville, Oklahoma.

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air compressor. Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St., Cincinnati, Ohio.

FOR SALE: Orifice and Positive Gas Meters. GEO. R. MILNER, Okmulgee, Oklahoma.

FOR SALE at Oklahoma City Warehouse, large quantity 4¾" o.d. 16#, 5" o.d. 15# slotted-perforated liner and Stanciff screen pipe. I. T. I. O. Company, Bartlesville, Okla.

COMPLETE
ROTARY DRILLING RIG
Steam Powered — Priced to sell.
Ready to go.
H-54 EMSCO Unitized Draw Works
25½" EMSCO Rotary Table
3—125 hp 350# up Kewanee Boilers, recently retubed. 2—14 x 4½ x 18 Wilson-Snyder slush pumps with all auxiliary equipment for efficient operation. This rig has been well maintained and now ready for service. Located in Seminole area. With or without 5000' 6⅝" drill pipe. For details and price write
PIONEER DRILLING COMPANY
1411 Nat'l. Bank of Tulsa Bldg.,
Tulsa, Okla.

FOR SALE: Reda Pump Equipment, Generators, Elect. Equip., Gas Lift Plant, Separators, other miscl. equip. For complete list write Grimes-Abilene Oil Co., 1910 First National Bldg., Okla. City, Okla.

TANKS FOR SALE
4—5000 barrel, 2—10,000 barrel steel riveted tanks, 1—55,000 barrel, 2—80,000 barrel steel tanks, 1,500 tons plate steel. We buy tanks, pipe and salvage. Walker Pipe & Supply Co., Monahans, Texas.

"Motorist Safety" says
LUBRICATING GAS-O-LINE
ADMIXTURE
HERE IT IS: Instant, dynamic, split-second quick-way motor performance, at no extra cost. Increased mileage pays for it. Makes cheap gasoline good and high-test gasoline better; and most powerful gasoline on American market. Prove it for yourself on gasoline,—satisfaction or money back. Order NOW —it means thrift and economy as well as a thrill.
Lubricating Gasoline Co.
P. O. BOX 839 HOUSTON, TEXAS

FOR SALE—$80,000.00 Rotary Rig complete. 10-in. Emsco Unit, 125-350 Boilers, etc. Practically new. Bargain. Roberts Bros., Box 306, Tyler, Texas.

FOR SALE

25,000 ft. of 4" seamless drill pipe equipped with both full hole and regular tool joints.
10,000 ft. of 7" 24# seamless casing, once run.
5,000 ft. of 7" 26# seamless casing, once run.
10,000 ft. of 2½" seamless tubing, used for flowing wells only.
We also have several complete drilling rigs, one with Unitized Draw Works capable of drilling 6,500 ft. The above is located in Shreveport, Louisiana.
We also have 30,000 ft. of 6" screw line pipe located in Oklahoma.
Wire, Write or Phone for Prices

Louisiana Iron & Supply Co.
Shreveport, Louisiana

FOR SALE
25,000 feet A-1 4" Line Pipe, Recessed Line Pipe Couplings and First Class Threads, Standard Weight Line Pipe.
10,000 feet 6" Line Pipe, Standard Weight—Screw Pipe.
Wire, write or phone for prices.
THE INTERSTATE
PIPE & SUPPLY COMPANY
Marietta, Ohio.

TRACTORS
Government crawler type Caterpillars size "35" $375; size "65" with nigger head winch $750; Trailbuilder Cletrac "55" with angledozer $1125; Caterpillar RD8 with bulldozer $2000; Allis-Chalmers Model L with bulldozer $1750. All slightly used overhauled, guaranteed. O. C. EVANS, Mount Sterling, Kentucky.

FOR SALE: 7 Ft. x 20 Ft. Butane welded storage tanks 125# WP, capacity 6000 gallons. I.T.I.O. Co., Bartlesville, Okla.

Equipment Wanted

WANT 84 ft. steel derrick complete for use in central southern Kansas. Give full description, location, and best cash price. Address Box K-565, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED: Small Butane unit to add to casing-head gas plant. State cash price, capacity and details of equipment.
ROBSON OIL COMPANY, INC.
Glasgow, Kentucky.

WILL purchase for cash, small natural gasoline plant, preferably located in Kansas, but will consider Oklahoma or Texas unit. Must be genuine bargain. Might consider inactive plant at better than junk value. Address Box K-580, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED
Several second-hand spudders, all kinds of cable tools, casing up to 12⅝" for shallow wells, one medium size tractor and any other kind of equipment suitable for cable tool drilling. Will buy in large quantities, for several operators. Will arrive in Tulsa, from Cuba, on or about May 18. Write to Chas. Ginart, c/o General Delivery, Tulsa, Oklahoma.

FOR SALE: 1500 bbl. oil refinery located Chicago area, now operating on Illinois crude oil. Complete pipe still, tankage, treating equipment, truck and tank car loading facilities, etc. Established business and complete organization. Price $25,000. Address Box K-552, The Oil and Gas Journal, Tulsa, Oklahoma.

Mississippi Wildcats

(Continued from Page 106)

Yalobusha County

Stewart Oil Co.'s No. 1 Ruth H. Creekmore, C SW NE Sec. 21-24n-7e. T. Eutaw 1,640 ft.; drlg. sh. 1,810 ft.

Yazoo County

Hassie Hunt's No. 3 A. G. Johnson, C NW NE Sec. 14-10-3. Drlg. sd. and sh. 2,950 ft.

Hassie Hunt's No. 4 A. G. Johnson, C NE NW Sec. 14-10-3. M.I.M. (cor.).

Edgar Johnston's No. 2-B Brumfield, C NE SE Sec. 2-10-3. Set 10¾-in. chk. 620 ft.; T.D. 826 ft.; W.O.C.

J. R. Lockhart et al's No. 1 Frank Brooks, W½ SE NW Sec. 17-10-2w. T. chalk 4,904 ft.; T. sd. 5,047 ft.; cd. 5,051-55 ft.; cores rec. 5,047-51 and 5,110-25 ft.; showed salty taste; S.D. 5,236 ft.; unable to sdtrk.

Nelson Bros.' No. 1 S. S. Stoner, C SE NW Sec. 2-11-5w. Set 8⅝-in. csg. 602 ft.; drlg. rd. and gr. sh. 4,927 ft.

Slick-Urschel Oil Co.'s No. 4 T. B. Slick, 440 ft. W, 660 ft. N, SE cor. NE Sec. 2-10-3. Set 10¾-in. csg. 634 ft.; T.D. 996 ft.; W.O.C.

Union Producing Co.'s No. 1-A Friley, C SE SE Sec. 14-10-3. T.D. 4,570 ft.; Eutaw sh.; missed Woodruff sd.; Stevens sd. 4,903-17 ft.; T.D. 4,961 ft.; set csg.; perf.

Union Prod. Co.'s No. 1 Ada Partridge, C SW SE Sec. 1-10-3. M.I. rig.

Union Prod. Co.'s No. 4 Perry, C SW NE Sec. 24-10-3. Set 16-in. csg. 50 ft. Stevens sd. 4,886-4,906 ft.; Stevens sd 4,944-63 ft.; stray sd. in Eutaw 4,976 ft.; D.S.T. 4,970-5,080 ft.; ⅝-in. cks. top and bttm.; rec. 2,100 ft. S.W. and drlg mud cut with oil; cd. sd. in Tuscaloosa 5,570-90 ft. showing oil.; D.S.T. 5,545-90 ft., ⅝-in. cks. top and bttm., rec. 560 ft. heavy oil and 720 ft. oil and S.W. in 10 min.; T.D. 6,133 ft.; set 7-in. csg. 5,035 ft.; perf. 4,980-90 ft.; tstd. 500 ft. mud and oil, 450 ft. oil, 1,400 ft. s.w. and oil and 2,400 ft. s.w.; sqzd. and drld. out cmt. 4,849-4,908 ft.; perf. 4,880-4,900 ft.; tstg.

Union Prod. Co.'s No. 1 Ross, NW NW Sec. 14-10-3. Drlg. 1,182 ft. in sd. and sh.

Union Prod. Co.'s No. 14 Stevens, C SE SW Sec. 1-10-3. Perf. csg. 4,744-66 ft. and 4,760-72 ft.; ran tbg. 4,750 ft.; washing in; T.D. 4,813 ft.

Union Prod. Co.'s No. 15 Stevens, C NE SW Sec. 1-10-3. Set 7-in. csg. 4,849 ft.; T.D. 4,935 ft.; W.O.C.

Union Prod. Co.'s No. 5 Woodruff, C SW SW Sec. 13-10-3. M.I.M.

ALABAMA

Choctaw County

Union Prod. Co.'s (formerly Joe Modisett et al) No. 1 McCorvey, SE cor. SW SW Sec. 20-9n-2w. O.W.D.D.; O.T.D. 7,520 ft.; Reaming to bttm.

Green County

E. C. Johnson's No. 1 Willis, SW Sec. 11-20n-1e. Spd.; set 20 ft. surf. csg.; S.D. 45 ft.

Mobile County

W. L. McClanahan's No. 1 J. A. Stafford, 300 ft. N, 150 ft. W SE cor. NW SW Sec. 24-7s-3w. Drlg. 512 ft.

FLORIDA

Dade County

Wm. G. Blanchard et al's No. 1 Everglades, 200 ft. E, 100 ft. N, SE cor Sec. 31-53s-35e. Set 16-in. csg. 140 ft.; drlg. L.&sh. 1,328 ft. (no report).

Levy County

Florida Oil Discovery Co.'s No. 2 Cedar Key, SW SW NE Sec. 9-15s-13e. T.D. 5,266 ft.; S.D. 4,150-79 ft.; set 4-in. csg. 4,230 ft.; perf. 4,150-79 ft.; ran tbg. and swbd. slight trace oil and S.G.; bailing S.W.; perp. perf. csg. 4,119-32 ft. (no report).

Harkey & Houck's No. 1 Crapps, Sec. 15-14s-17e. T.D. 900 ft.; no reports.

Nassau County

St. Mary's River Oil Corp.'s No. 1 Hilliard Turpentine Co., NW cor. NW SE Sec. 19-4n-24e. Reported S.O. 4,795-4,810 ft.; S.D. 4,814 ft. T.D.

Suwannee County

Wm. G. Blanchard et al's No. 1 Lucy Cotton, 774 ft. N, 153 ft. W, SE cor. NE¼ Sec. 35-3s-11e. S.D. 184 ft.

J. W. Phillips Oil Explrn. Co.'s No. 1 Shilkett, NW NW Sec. 14-4s-14e. S.D. cor. T.D. 389 ft.

GEORGIA

Clinch County

Georgia Resources, Inc.'s No. 1 Gillican, C Land Lot 200, 12th Land Dist. Set 10-in. csg. 736 ft.; drlg. sdtrkd. hole 150 ft.; no report.

Georgia Resources, Inc.'s No. 1 Wilkinson, Land Lot 273, Land Dist. 12. M.I.M.

Montgomery County

E. O. Moses' No. 3 Montgomery, SW R.R. station, Uvalda Sur. Drlg. sh. 750 ft.; no report.

Gulf Coast Markets

(Continued from Page 111)

demand, gasoline in the Gulf Coast markets continued weak and showed no signs of strengthening. No new business was reported and few inquiries were reported. It was felt in some quarters that the large-scale operations now under way in the European conflict would bolster to some extent the present low prices, but the improvement has failed to materialize. The weakness of gasoline market is reflected in a reported offer of 4½ cents for 77.2 octane. Whether the material was delivered at this price could not be ascertained.

Kerosene continued strong with the supply limited and material was still being moved at 4⅝ cents. Gas oils were in good demand and some refiners were reporting that they were sold up on material through May. No. 2 fuel was quoted at 4¾ cents.

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